RECONNAISSANCE PRESERVATION ASSESSMENT FOR MEMORY HILL CEMETERY, CITY OF MILLEDGEVILLE, GEORGIA

Chicora Research Contribution 445

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MANAGEMENT SUMMARY

Memory Hill Cemetery is an exceptionally beautiful and historic resource for Baldwin County, the City of Milledgeville, and the entire central Georgia area. Cemeteries, however, are very different from virtually all other types of properties that the City administers.

- They are sacred sites – consecrated within are the remains of loved ones deserving of the utmost of care and respect.

- They are artistic sites, such as sculpture gardens or outdoor museums, representing permanent collections of three-dimensional artifacts requiring the same level of care that museums provide.

- They are archives – storehouses of genealogical information, representing our individual and collective pasts.

- And they are scenic landscapes – like parks or open spaces, but requiring far more focused and specific care.

In sum, cemeteries are social, historic, architectural, and archaeological artifacts. When there is little else physically remaining of a community's earliest history, the local cemetery provides a unique tie to the past that would otherwise be lost.

Therefore cemeteries require very specific consideration and different care from the other types of open sites found in most communities.

Over the years Memory Hill Cemetery has failed to receive the care and attention that it both deserves and requires. As a result of these years of deferred maintenance, a number of issues – many of them critical and costly – require the City's immediate attention.

This report evaluates – at a reconnaissance level – these needs, classifying them into three broad categories:

- Those issues that are so critical – typically reflecting broad administrative issues, health and safety issues, and issues that if delayed will result in significantly greater costs – that require immediate attention during the first fiscal or calendar year (for example the City's FY2006-2007).

- Those issues that, while significant and reflecting on-going deterioration and concerns, can be spread over the next 2 to 3 years. This allows some budgeting flexibility, but this flexibility should not be misconstrued as a reason to ignore the seriousness of the issues.

- Finally, those issues that represent on-going maintenance and preservation issues. These costs can be spread over the following three to five years. Like the Second Priority issues, this budgetary flexibility should not be interpreted as allowing these issues to slide since further delay will only increase the cost of necessary actions.

The First Priority Issues have a budget of approximately $207,100.

- This includes approximately $92,000 of costs associated with the repair of monuments and fences. The monuments included in this category are so unstable they represent a safety threat to the public visiting the cemetery, while the fences, about half of those in the cemetery, represent those where immediate intervention will provide the greatest long-term benefits.

- Other critical first year costs include having all of the cemetery's trees – one of its finest yet most fragile and already badly damaged resources – inspected and professionally treated by a certified arborist ($25,000).

- It is also necessary to undertake a program to rehabilitate the cemetery's shrubbery – for years neglected and poorly cared for. The cost of this work is estimated at $15,000.

- The road in the African American section is in poor condition. Roads are part of the cemetery's infrastructure and they must be appropriately maintained. It may be possible to slurry coat this road, rather than repave it. If so, the cost of this work is estimated to be approximately $52,000.

- It is imperative that the cemetery have a detailed landscape plan prepared. This document will begin to sort out what plants are appropriate and should remain and which need to be removed. Assuming the City's Engineering Department provides a map of the cemetery, the cost of this plan will be approximately $8,000.

- Other monument related issues include $500 to secure the gates to prevent theft and $6,000 for a detailed assessment of the brick tomb and specifications for needed repair work. Other landscape issues include $3,000 for a comprehensive fire ant control program since these pests pose a significant liability to the City and $2,600 for bollards to block the arterial roads in the cemetery. Finally, $3,000 is budgeted for additional signage in the cemetery.

Second priority issues are estimated to cost about $536,000, although about $350,000 of this is to obtain appropriate staffing for the cemetery's care and maintenance.

The City's use of prisoners (with no training, no long-term commitment to the cemetery, and inadequate supervision) and in-house staff (at very low pay grades and no better training) is causing significant damage and deterioration to the cemetery. If this process is not changed, it is unlikely there will be any material improvement in the overall condition of the cemetery. Second Priority costs include:

- Approximately $55,000 for the conservation treatment of second priority monuments.

- An estimated $25,000 in funds to rehabilitate the main entrance of the cemetery, removing the non-historic fencing and replacing it with more historically appropriate fencing.

- The repair of damaged lot coping and minimally stabilization of deteriorated plot walls will cost approximately $10,000. This assumes the City conducts much of the work, supplemented by technical specifications and conservation oversight.

- As a continuation of the landscape maintenance plan proposed for the first phase, an additional $5,000 is included to allow further study of the trees, as necessary. $500 is included to allow soil tests in the cemetery to determine what

levels of soil amendments are appropriate.

- The cleaning and repair of the catch basins in the cemetery, with the work performed by City crews, should cost about $1,500.

- Finally, we recommend that additional brochures concerning Memory Hill be developed and printed. We estimate this cost to be about $10,000. We also recommend that specialized brochure costs (such as those dealing with American Revolution and Civil War burials) be assumed by organizations such as the DAR, and SCV – otherwise the brochures should be dropped.

The items listed as third priority are those that can be spread over five years – perhaps extending into FY 2011-2012. These issues, however, are no less significant and will have a cost of about $65,000 (not reflecting inflation or continued deterioration; nor does the cost reflect the on-going salaries of the staff needed to maintain the cemetery). These costs are also similar to those previously outlined, but are able to be postponed *short-term*.

- Continued conservation costs, which should be viewed as an on-going cost, are estimated to be $25,000.

- An effort must be made to control the broadleaf weeds that are taking over the lawn in Memory Hill. We estimate that an initial program will cost about $10,000, although there will be some on-going cost associated with this program as well. The cost, however, can be reduced by one or more City employees obtaining their Commercial Pesticide Applicator's License in the Category Ornamental and Turf Pest Control from the Georgia Department of Agriculture.

- We estimate an additional $25,000 may be required for a follow-up of tree health by a certified arborist. This could also be saved if the City were to hire and retain a certified arborist on-staff (other communities have taken this step and it allows staff to operate under this individual's oversight).

While some funds may be identified from family members or grants (and certainly the Friends and City should seek as much grant funding as possible), the Cemetery is owned by the City and it is a City resource. Many of the issues outlined here, such as roads and trees are on common property and rightly fall to the City for appropriate maintenance and care. Similarly, many of the monuments that require immediate care and treatment are found on lots whose owners' descendants are no longer citizens in Milledgeville. As a result, these costs fall on the City as the owner of the property.

Failure to act will not save the City of Milledgeville money – failure to act in a timely manner will significantly increase the costs and will significantly degrade the resource.

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INTRODUCTION

The Project

In 2004 the Friends of Baldwin County [Georgia] Cemeteries contacted Chicora Foundation and inquired about developing an assessment of Memory Hill Cemetery in Milledgeville, Georgia. After nearly two years of fund raising, the Chair of the organization, Dr. Susan Harrington, contacted the Foundation again in December 2005 and we prepared a revised budget that was approved in January 2006, with the study to be conducted in March 2006.

Figure 1. View of entrance to Memory Hill Cemetery looking south from South Liberty Street across West Franklin Street.

The assessment would examine a broad range of preservation topics, including not only maintenance of the landscape, but also security, pedestrian and vehicular access, vandalism, signage, and other issues involving the long-term preservation of the cemetery. Although a detailed stone-by-stone assessment would not be conducted, we were to provide broad recommendations regarding future conservation efforts and repairs, including not only the monuments, but also the ironwork in the cemetery.

With the revised scope and agreement approved by the Friends, the work in the cemetery began on Thursday, March 23 and Friday, March 24, 2006. The field investigations were conducted by the author and Ms. Nicole Southerland.

During this on-site study we met with Mr. Jack Graham, City Marshal (the Marshal is responsible for the City's Public Works Department), and Mr. Stanley Miller, who is responsible for the daily upkeep of the cemetery, as well as with Dr. Susan Harrington, chair of the Friends of Baldwin County Cemeteries.

Preservation Fundamentals

Preservation is not an especially difficult concept to grasp, although admittedly some work diligently to make it seem so. The fundamental concepts are well presented in the Secretary of the Interior's Standards for Preservation (see Table 1).

This document reminds us – at least at a general level – of what we need to be thinking

Table 1.
Secretary of the Interior's Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.

2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

about as we begin a cemetery preservation plan. Those responsible for the care of Memory Hill Cemetery should be intimately familiar with the eight critical issues it outlines.

For example, all other factors being equal, a cemetery should be used as a cemetery – not to walk dogs, not as a play ground, and not as a park. And until we are able to do what needs to be done, it is our responsibility to make certain that the site is preserved – it must not be allowed to suffer damage under our watch.

We must work diligently to understand – and retain – the historic character of the cemetery. In other words, we must look at the cemetery with a new vision and ask ourselves, "what gives this cemetery its unique, historical character?" Perhaps it is the landscape, the old and stately trees, the large box woods, the magnificent arborvitae. Perhaps it is the very large proportion of complex monuments, or the exceptional slate markers. Whatever it is, we become the guardians responsible for making certain those elements are protected and enhanced (whether they are particularly appealing to us or not). Whatever conservation efforts are necessary must be done to the highest professional standards; these conservation efforts must be physically and visually compatible with the original materials; these conservation efforts must not seek to mislead the public into thinking that repairs are original work; and the conservation efforts must be documented for future generations. If you aren't a conservator, then what this requirement means is that it is your responsibility as the steward of the property to retain a conservator appropriately trained and subscribing the Code of Ethics and Standards of Practice of the American Institute for Conservation (AIC).

The Secretary of the Interior reminds us that each and every cemetery has evolved and represents different styles and forms. It is our responsibility to care for all of these modifications and not seek to create a "Disney-land" version of the cemetery, tearing out

features that don't fit into our concept of what the cemetery "ought" to look like.

Likewise, we are reminded that there will be designs, monuments, and other features that characterize our cemetery – and we are responsible for identifying these items and ensuring their preservation. We must be circumspect in any modifications, ensuring that we are not destroying what we seek to protect.

Before acting, we are required as good and careful stewards to explore and evaluate the property, determining exactly what level of intervention – what level of conservation – what level of tree pruning -- is actually necessary. And where it is necessary to introduce new materials – perhaps a pathway – into the cemetery, we must do our best to make certain these new elements are not only absolutely necessary, but also match the old elements in composition, design, color, and texture. In other words, if the cemetery has brick pathways, we would be failing as good stewards if we allowed concrete pathways – especially if our only justification was because they were less expensive.

Figure 2. Steep slope from South Wilkinson Street up to the cemetery.

Where conservation treatments are necessary, the Secretary of the Interior tells us that they must be the gentlest possible. However you phrase it – less is more – think smart, not strong – you have an obligation to make certain that no harm comes to the resource while under your care. And again, one of the easiest ways to comply is to make certain that you retain a conservator subscribing to the ethics and standards of the American Institute for Conservation.

Finally, we must also recognize that the cemetery is not just a collection of monuments and the associated landscape – the cemetery is also an archaeological resource. We must be constantly thinking about how our efforts – whether to repair a monument, put in a parking lot, or resurface a path – will affect the archaeological resources – archaeological resources that just happen to be the remains of people buried at the cemetery by their loved ones.

The Cemetery Location

Memory Hill Cemetery is today located on the south side of the downtown area, bounded to the north by West Franklin Street, to the east by South Wilkinson Street, and to the west by South Clark Street. To the south the topography drops off dramatically, into the densely wooded floodplain of Fishing Creek (Figure 3).

The area exhibits mixed use. To the east and west there are new housing units under construction, to the north is the commercial

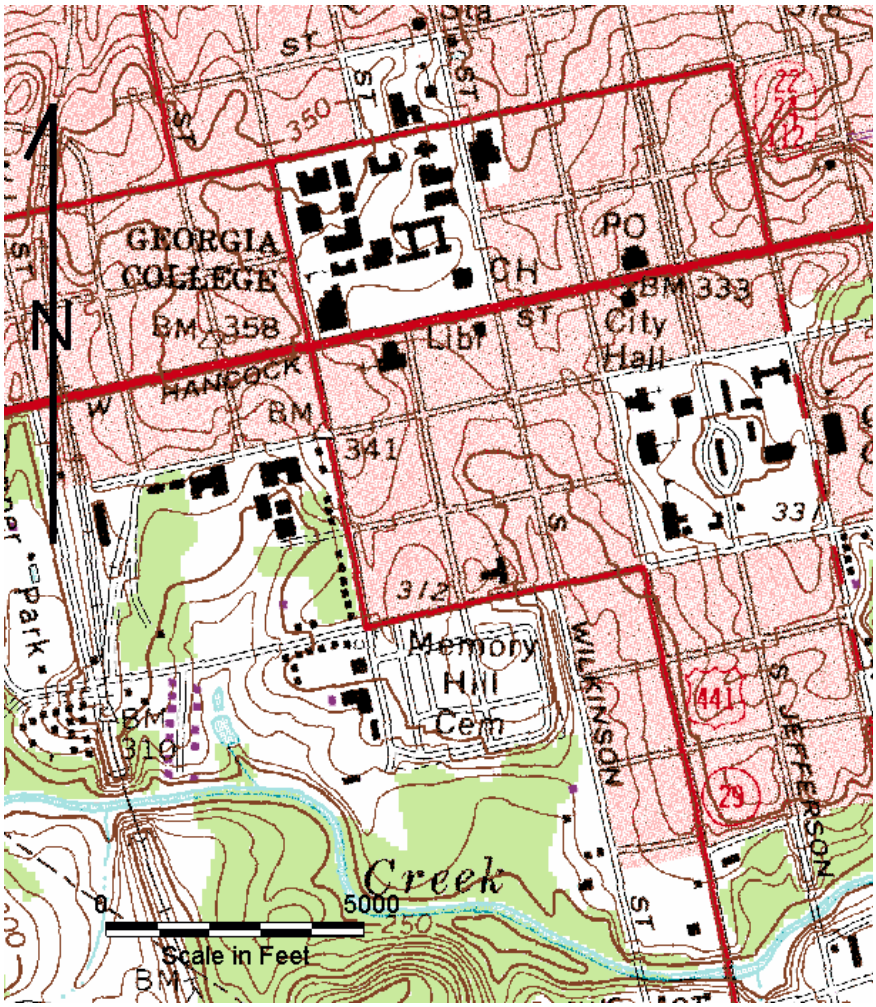

Figure 3. Portion of the Milledgeville USGS topographic map showing the area surrounding Memory Hill Cemetery.

downtown shared with the Georgia College and State University and the Georgia Military College, while to the southeast there are lower income, apparently predominately African American, commercial and residential areas.

The Setting and Context

Milledgeville's downtown area, associated with Georgia College and State University dominates the cemetery to the north, although there are a number of historic homes directly north of West Franklin Street. In spite of the surrounding commercial, residential, and educational facilities, the cemetery retains a relatively peaceful ambience. The steep slope down from the cemetery to Wilkinson Street tends to isolate the grounds from the neighborhood in that direction. Although traffic can be heavy on West Franklin to the north, the cemetery is effectively screened along its northern perimeter. The greatest potential for visual and noise pollution, at present, appears to come from the west, where new housing is being constructed essentially at the same grade as the cemetery. While this creates an interesting juxtaposition, many would find the construction visually intrusive and not conducive to the quiet and tranquility befitting a historic cemetery. The City of Milledgeville may wish to consider options to minimize such intrusion in the future, as well as explore ways to mitigate that which has already occurred.

The cemetery has several entrances along West Franklin, although generally only one is open for vehicular and pedestrian traffic (other gates are opened, it appears, as needed for either maintenance or funerals). The cemetery has a main entrance road running north-south, roughly dividing the grounds into eastern and western sections. The eastern section is further subdivided by a series of seven cross roads, typically very narrow, all connecting with a north-south road along the cemetery's eastern edge. The western section is similar, with three east-west roads and three

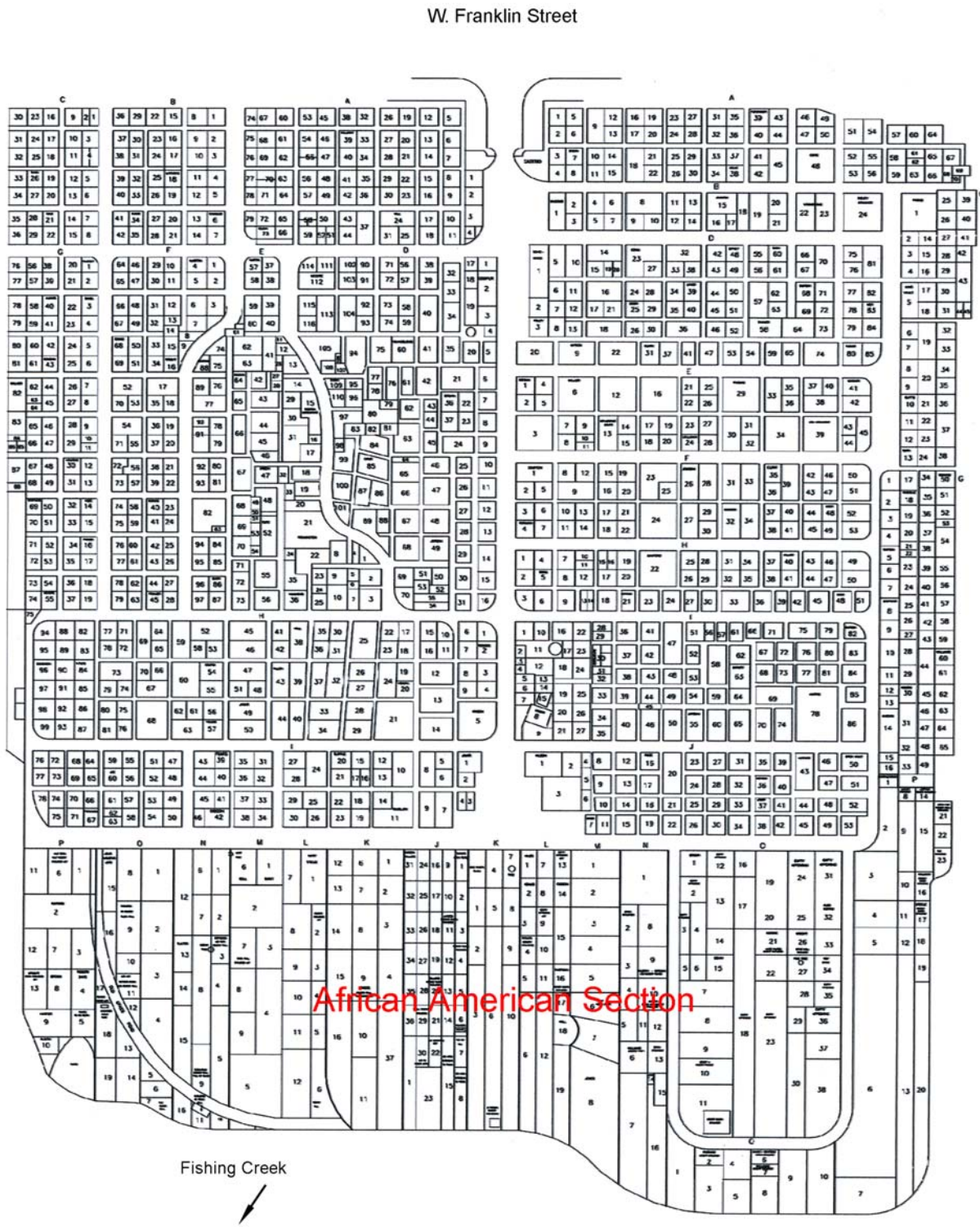

Figure 4. Plots at Memory Hill Cemetery.

north-south roads. Overall this road network has created a gridded arrangement of plots.

At the south end of the cemetery is the section that has historically been used by African American families. This area is separated from the northern grounds by an east-west road. Access into the black section is by a horseshoe-shaped road in the eastern half and a dead-end road in the western section.

The topography of the cemetery is gradually sloping to the south (Figure 3), with the African American section situated on the slope down to the Fishing Creek floodplain. In fact, based on the 1979 FEMA Milledgeville FIRM (Panel 10), much of the African American cemetery may be located in the 100 year flood zone, with the 500 year flood line located just south of the boundary road (Figure 6). The highest section of the cemetery is situated in the northeast quadrant, with a gradual slope to the west and a very steep drop-off to South Wilkinson Street at the eastern edge. The newer plots are found along this eastern edge of the cemetery.

The cemetery's character is also defined by the variety and texture of the three-dimensional monuments which are found throughout the cemetery, as well as the ironwork, identified on 27 plots in the western half of the cemetery and 35 plots in the eastern half.

The vegetation in the cemetery is equally diverse, but often non-historic, cluttered, and very frequently overwhelming the cemetery, obscuring the stones, and contributing little to beauty, serenity, or historic context of the place. The original landscape character has been masked by random and poorly conceived additions, making rehabilitation of the plantings perhaps the single highest priority.

The Place Of Memory Hill in Cemetery Development

Memory Hill was apparently begun as a Methodist Church cemetery ca. 1809, but at some time afterward became a city cemetery as the Methodists moved to another location.

It may be this early association with church and city that formalized the cemetery's layout. The gridded design, narrow streets, and tightly arranged graves are all typical of late eighteenth and early nineteenth century inner city plans were there was a focus on maximizing space.

Figure 5. Much of the cemetery is dominated by family plots and three dimensional monuments.

There are, however, also elements that reveal influences of the Rural Cemetery movement. There was a focus on family lots – places where extended families could be buried together for perpetuity. These lots tended to be lavish, being edged with stone, fences, and

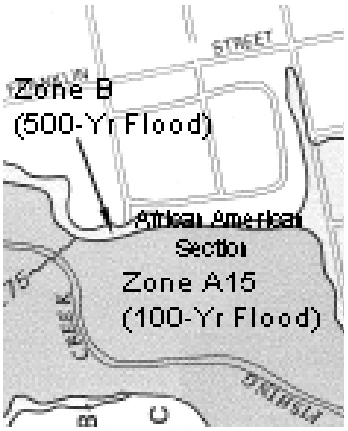

Figure 6. FEMA FIRM for Memory Hill Cemetery.

hedges. The best example – and certainly most widely known – is Mount Auburn in Cambridge, Massachusetts, established in 1831. More local examples, however, include Magnolia Cemetery in Charleston (1850), Oakland Cemetery in Atlanta (1850), and Hollywood Cemetery in Richmond (1847).

The Rural Cemetery movement moved cemeteries from the city core to the edge, helping to relieve the fear of contagion – a characteristic that is not seen at Memory Hill. In addition, the movement created a reaction to the ostentatious displays found in these cemeteries. One of the most strident – and outspoken – critics, Adolph Strauch, the Superintendent of Spring Grove Cemetery in Cincinnati, observed that, "gaudiness is often mistaken for splendor, and capricious strangeness for improvement." Strauch is credited with devising the "landscape lawn plan," often called more simply "lawn parks." The landscape was opened, made simpler and more spacious. Management limited marker size, placement, and plantings, preventing "gaudy" or "ostentatious" monuments from "cluttering" the landscape with "excess." Copings and fences were banned and, where present, were often removed. Evidence of this reaction can be found at the periphery of Memory Hill, primarily along the eastern edge, although individual lots throughout give some indications of this new style.

By 1917 the "memorial park" movement had begun with the reworking of the failing Forest Park Cemetery in Los Angeles. The landscape was even further simplified, with only flush-to-ground markers allowed and all lot plantings, copings, fencing, and amenities entirely forbidden. The entire landscape was designed to minimize maintenance and, in addition, to remove vestiges of death. There are relatively few plots that evidence this severe approach and, where present, they probably speak more to family selection than any mandated style.

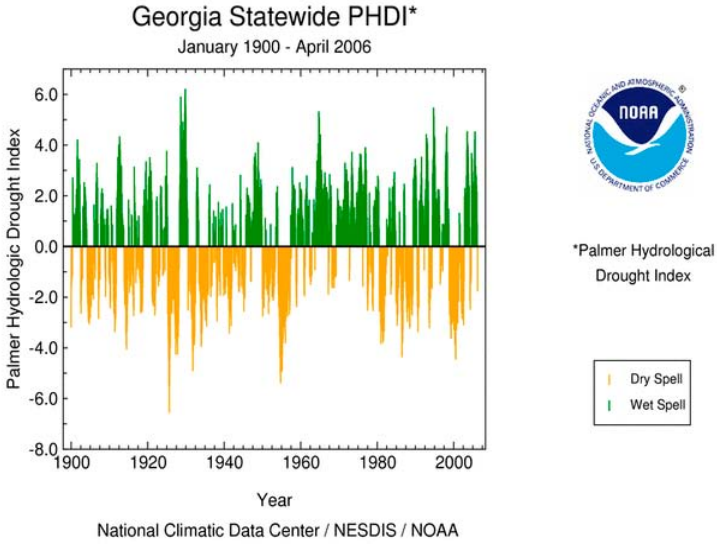

Figure 7. Statewide drought index.

Factors Affecting the Landscape Character

Baldwin County is about equally divided between the Carolina and Georgia Sand Hills, a zone of heavily dissected hills characterized by well-drained sandy soils, and to the north, the Southern Piedmont, recognized by the steep to gently rolling hills with thin, well drained red sandy loam and sandy clay soils.

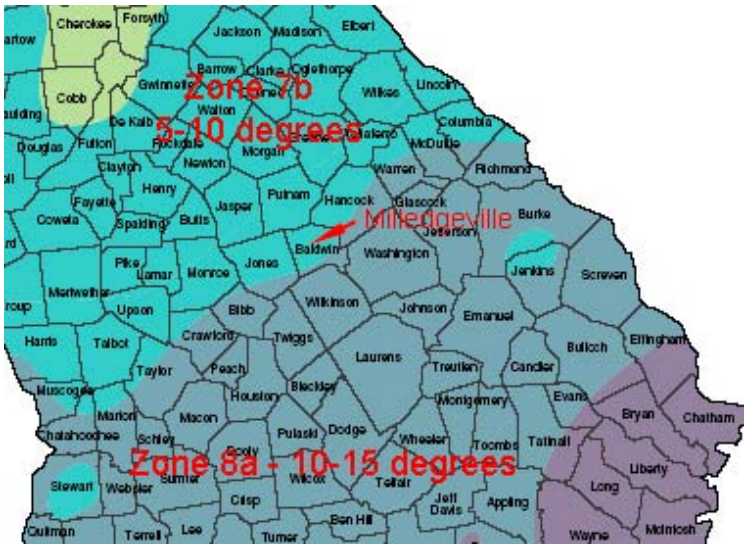

Figure 8. USDA plant hardiness zone for the Milledgeville area.

Milledgeville, although situated in the middle of the county, is dominated by Piedmont topography and soils. Rivers and creeks form a well-defined drainage pattern flowing primarily eastward to the Oconee River, which flows southward.

Soils in the Baldwin County uplands belong primarily to the Cecil-Appling Association. These soils characterize the red clay hill region of the South and are medium to strongly acid in reaction, low in organic matter, and generally having a sandy loam to clay texture, usually underlain by red, stiff but brittle clay subsoils.

Milledgeville is characterized by a temperate climate with mild winters and hot summers, at least by modern standards. Winter temperatures, however, frequently hover between the high 50s and freezing, while in the summer temperatures will frequently be in the mid-90s during the day. During the fall, winter, and spring the weather is controlled largely by the west to east motion of fronts and air masses. Air exchanges are less frequent in the summer and maritime tropical air can persist in the region for relatively long periods – giving rise to very warm, humid days.

Typically abundant precipitation is distributed fairly evenly throughout the year, with an average annual precipitation of about 46 inches. Figure 7, however, reveals considerable potential for drought. The area has an average growing season of about 216 days, although this will vary by specific location, with low areas often evidencing late frosts. Figure 8 shows that the bulk of Baldwin County, including Memory Hill Cemetery, is situated in Plant Hardiness Zone 7b, where the minimum temperatures are expected to be between 5 and 10°F.

Recommendations

All decisions regarding modifications, alterations, additions, or other actions affecting Springwood Cemetery should be carefully evaluated against the Secretary of the Interior's Standards for Preservation.

Much of the cemetery's character derives from the evidence of three primary cemetery designs – traditional city, rural cemetery, and lawn park. These elements have particular importance and should be closely guarded.

The cemetery has become cluttered with inappropriate and non-historic plantings. These detract from the beauty and historic integrity of the cemetery. Many of these plantings need to be removed, opening the landscape. All future plantings should be strictly limited to a carefully determined plan.

ROAD AND PEDESTRIAN ISSUES

Circulation

As mentioned, Memory Hill Cemetery has tthree gates on the north side (including the main gate) and one on the west (there are several other "maintenance" gates). Other than the main gate, these other entrances are typically locked. All have limitations and preservation issues.

Figure 9. The main entrance lacks interest and fails to present a historic theme or context. The plantings detract from the overall appearance.

The main gate or entrance is the focal point of the cemetery, yet it is rather non-descript and offers no particularly dramatic entrance (Figure 9). The recessed two-lane entrance consists of two sandstone columns. What appears to be original fencing is now entirely decorative, having been replaced with a taller and less ornate iron fence. Much of this fence, as well as the gates and entrance in general, are obscured by plantings which appear muddled with no particular theme or arrangement. The modern roadway, stop signs, and overhead blinking red lights all detract from the historic context and sensibility of the entrance.

The other entrance off West Franklin Street offers an even less appropriate setting. There the more recent metal fence has been replaced with chain link – an entirely inappropriate fencing material that gives the cemetery an industrial appearance. The original granite posts have been retained, along with what appears to be the original gates. These gates, however, have been fixed in an open position and a second set of modern iron gates are attached to the chain link fence posts. The historic fabric, retained only as decorative elements, is swamped by modern replace-ment materials and is unable to establish the historic context of the cemetery. This mixing of materials is poor preservation and fails to maintain the Secretary of Interior's Standards previously discussed.

Along the west side another entrance reveals a similar mix of materials – original iron fencing, industrial chain link, and modern iron fencing. These detract from the historic setting

Figure 10. Discordant gate settings at Memory Hill. Both gates indiscriminately mix historic fabric and modern materials, detracting from the historic significance of the property (top is gate on W. Franklin, bottom is the gate on S. Clark).

Figure 11. Roads in Memory Hill Cemetery. The top photograph shows the main entrance road. On the bottom is the horseshoe road in the African American section, showing deterioration and grass growing through the asphalt.

Figure 12. Example of narrow arterial road that should be closed – and the damage to a brick wall caused by vehicular traffic.

and landscape, negatively affecting the historic significance of the property.

Consideration should be given to a long-term effort to redesign the entrances using appropriate historic fabric, including plantings that complement the historic character and setting of the cemetery.

The Roadways

Once in the cemetery the main north-south roadway is a narrow two-way (ca. 20 feet in width) avenue lacking curb and gutter. The arterial roads are all much narrower, typically 10 to 12 feet in width. The turning radiuses are very tight in numerous areas, especially along the eastern perimeter.

There are numerous examples of damage to monuments and walls along these narrow avenues and at corners. Perhaps the most significant damage has been done to a brick wall on the eastern side. Impact to the wall has displaced the brick by about 6-inches along the entire 30-foot length of wall.

All of the roads are asphalt, but I have no information on the depth of the base or other construction details. All were apparently paved or repaved only a few years ago.

The condition of the roads in the northern, predominately white, section of the cemetery is far superior to those in the African American section on the slope and in the Fishing Creek floodplain. There the asphalt appears considerably thinner and grass has broken through the paving in numerous areas in these lower areas.

The roadway design in the northern section is generally gridded, with the only exception being in Section E on the west side. There the roads take on a somewhat more graceful arrangement, slightly more suggestive of the Rural Cemetery movement. The roadway design in the African American cemetery is entirely practical – allowing access with a minimum of paving expense. In spite of this, there are many areas of the African American cemetery which are not accessible by road, necessitating long walks from the few roadways available (see Figure 4).

Given the development of the cemetery, there is relatively little that can be done to improve the circulation pattern of the cemetery. *One issue that the City can address, however, is the closing of arterial roads using movable bollards. These would be locked in position under normal circumstances, but could be removed as necessary for maintenance or the occasional funeral. By eliminating traffic on these roads it would be possible to minimize the damage being done to the landscape, walls, and monuments.* The walk to reach any grave in the northern section would be no greater than the walk currently necessary to reach graves in the southern, African American section – so this should pose no significant inconvenience to the public.

Otherwise, traffic in the cemetery is light, with only about 50 burials a year (one a week). Visitation likely peaks around major holidays and there may be a tourist season during warm weather, but during our investigations, vehicular use of the cemetery roads was very light.

Another issue the City should address in the near-term is the rehabilitation of the roads in the African American section. The grass penetrating the road indicates little base material and a very thin asphalt wear layer – possible evidence of a low quality job.

Drainage

There are no curbs, gutters, or drains installed in the cemetery. We were not present during a period of heavy rainfall, so I am not certain how the roads drain the accumulated water.

I did, however, observe at least one catch basin drain on the eastern edge of the

Figure 13. Critical drainage problems at Memory Hill include clogged catch basins (top) and collapsing drain lines (bottom). These require immediate attention from the City.

cemetery. The drain itself was entirely clogged with soil and weedy growth. In addition, the drain line from this catch basin has almost entirely collapsed, resulting in a partially open ditch that poses a threat to the public.

As an immediate step, this (and any other) catch basins in the cemetery and their associated drain lines should be entirely cleaned and repaired as necessary. This work should receive a high priority given the safety hazard posed by the open and collapsing drains.

Pedestrian Access and Sidewalks

There are no sidewalks in the cemetery. This, however, does not appear to be a significant issue since there is very little pedestrian activity in the cemetery and most of this activity is taking place on the roads since there is so little vehicular traffic. The placement of bollards to limit traffic on the very narrow avenues would further enhance their use as pedestrian pathways and this would benefit the overall appearance and ambience of the cemetery.

Universal Access

There are no stairs in the cemetery and the roads – with the exception of those in the African American section – exhibit little grade. Consequently, there is little affecting ADA or universal access. In addition, the ADA or the Rehabilitation Act of 1973 is generally not interpreted to apply to cemeteries by the Department of Justice.

Inappropriate Pathways

During this assessment we noted no inappropriate cut-throughs or the resulting damage to the landscape. This is at least partially the result of limited visitation of the cemetery coupled with abundant paved roads. The placement of bollards to limit traffic on the very narrow avenues would further enhance their use as pedestrian pathways.

Nevertheless, the City should be prepared to identify inappropriate pathways and take immediate action to prevent landscape damage. A typical approach is the installation of signage asking citizens not to damage the plantings and immediately replanting the worn grass. This direct confrontation – through signage and replanting – is usually adequate to control the process. If it does not work, we recommend selecting plantings, such as yucca, osage orange (although a tree, they can be planted close together and pruned to promote an almost invincible hedge), or hollies that will deter pedestrian access.

Recommendations

The historic fabric and context of the main entrance should be protected. This will require removal of inappropriate and distracting plantings and reduction of modern fencing material. Other entrances should be treated in a similar fashion.

Arterial roads within the cemetery, especially on the eastern side, should be closed to vehicular traffic through the use of removable bollards. This will reduce the damage done to walls and stones by automobile traffic and will promote pedestrian use of the cemetery.

The roads within the African American section should be rehabilitated. This work may require repair or replacement of the base material and application of a new asphalt wear layer.

All catch basins and drains in the cemetery should be cleaned and repaired as needed. This work should receive a high priority since the collapsing drains pose a significant threat to the public.

LIGHTING AND SECURITY ISSUES

Cemetery Lighting

The cemetery would not have been lighted historically and so the absence of lighting today is entirely appropriate.

The only lighting identified within the cemetery was at the southern edge of the property, immediately before the slope into the African American section. This lamp is a sodium vapor design, characteristic of the urban setting, but entirely inappropriate for the cemetery setting.

In addition, no one consulted during the assessment could identify the function of the lamp or when it was erected. *Lacking any defined function or need, and being of a design that is entirely inappropriate, this lamp should be removed (not simply disconnected) from the cemetery.*

Vandalism

Although it is reported that there have been episodes of vandalism at the cemetery, none has been noted recently. During the assessment we spoke to a Milledgeville police officer sitting in the cemetery completing paperwork. He reported no incidences in the recent past and also that the cemetery was typically patrolled once or twice at night.

The main entrance is left unlocked and this may actually be beneficial since it allows the police to patrol the cemetery more readily. We have found that gates do little to keep out those who vandalize monuments, but it does deter police patrols.

While we cannot rule out vandalism, of the damage that we observed there was little evidence of intentional or malicious acts – based on the nature of the breaks or the size of the stone. In general the damage appears to be the result of either inappropriate repairs, vehicular damage, inappropriate lawn care, or indifference to the historic fabric.

One very useful contribution the Friends could make is to become familiar with the stones identified as broken or damaged and periodically patrol through the cemetery, looking for new damage. Without some means of identifying damage close to the time when it has occurred, it will never be possible to accurately determine the level of threat that Memory Hill truly faces.

It is also critical that the Friends work with the City to develop a set mechanism for reporting, documenting, and responding to damage or theft within the cemetery. Working these issues out ahead of time will make certain that problems are reported and that there is an appropriate response.

Hardening Targets

Thefts in cemeteries have dramatically increased. The reasons for this are two-fold. First, there is an increasing market for gates, urns, ironwork, and statuary – created by an increase in upscale garden design and individuals willing to pay large sums for original artwork. Second, there is less attention being paid to cemetery fixtures, largely the result of decreased maintenance budgets and fewer police patrols.

Memory Hill has a number of items that would be especially attractive to thieves, including fencing sections, iron gates, and statuary. *Unfortunately, there has yet to be a complete photographic inventory of the cemetery – and this should be a critical first step since it provides documentation of what is in the cemetery.* There is, however, more that can be done.

Figure 14. Immediate intervention is needed to prevent loss of historic fabric. The top photograph shows how easily gates could be removed from the cemetery. The lower photograph shows how decorative brick could be removed.

During this assessment we discovered that virtually all of the fence gates on individual plots were susceptible to theft since none were secured. *It is a simple maintenance step to use woven stainless steel wire to secure gates to their hinge posts.* This allows the gate to open and close, but makes it considerably more difficult to lift the gate off its hinges and steal it. The per gate cost is less than $20 and the time involved is about 15 minutes per gate. This is something that either the City or the Friends could easily accomplish in a single day.

Other objects of potential theft include the iron vases, American Legion and Confederate Cross markers, and even the decorative brick. Appropriate maintenance would make all of these less attractive. Items should be secured, markers appropriately attached, and bricks repaired when necessary.

The City should periodically inspect lots to identify such problems and correct them. It should also be possible to have the local UDC or SCV participate in a care program for the Confederate markers (many of which are in desperate need of maintenance).

Recommendations

The simple light at the south edge of the cemetery is inappropriate to the setting and appears to serve no function. It should be removed.

The City and Friends should both work to ensure that there are routine police patrols through the cemetery. These should occur at least once per night, with special attention paid to weekends and holidays.

The Friends and the City should develop a policy for identifying, reporting, and responding to damage, vandalism, and theft within the cemetery.

All plot gates in the cemetery should be secured using woven stainless steel wire, attaching the gate to its hinge post.

Maintenance should be improved to prevent items from being easily picked up and removed from the cemetery.

CEMETERY FIXTURES AND FURNISHINGS

Cemetery Buildings

There are two structures (other than a brick family vault and gazebo) at Memory Hill – one is a small utility building, referred to as the sexton's shed, and the other is a bathroom structure. Neither building has any historical documentation and both are in regrettably dilapidated condition, suffering what is often called "demolition through neglect" having received no appropriate maintenance.

The sexton's shed is square with a hipped metal roof and of flushboard construction set on brick piers. There are distinctly Victorian aspects, including a roof finial and a flat, jig-saw cut frieze. Nails include both wire and cut examples, with the latter far more common. The structure has two fixed 6/6 windows, one on the left elevation and the other in the rear. It also has a small flue, providing evidence of an earlier stove, probably for heating. The front double doors are modern replacements and there is no visible evidence of the original doors or their hardware. The structure is suffering considerable rot where the asphalt roadway has been laid over the flushboard cladding. Much of the frieze has also been damaged and the roof is in poor condition.

The structure is today used for storage of maintenance equipment, although it appears likely that it originally served as a small shop. The extant details suggest a date of ca. 1880. *Absent evidence to the contrary, this structure should be considered a contributing element and is worthy of preservation efforts.*

Issues requiring immediate attention include the elevation of the structure above the asphalt, allowing drainage and air movement to prevent additional rot and wood loss. Once accomplished, the flushboard should be evaluated and replaced with appropriately sized material where necessary. The roof should be inspected and, if necessary, replaced. The City should take special care to ensure that, should this structure require repairs, every effort is made to respect the historic fabric and the repairs are made using appropriate materials and methods. A longer-term goal should be the identification of photographs showing the structure that would allow the entryway to be restored to its historic appearance.

Related to the maintenance of the cemetery, as well as the structure, is its use. Today, this building appears to be a repository for broken and damaged stones. Unfortunately, many of these are simply stacked at the back of the structure, a practice that evidences little or no care for the historic character of the cemetery, much less a respect for the dead or their families.

All broken stones that are picked up for storage prior to repair must be inventoried, with their exact location noted. There must be some practice whereby this information is attached to the stone fragments – ensuring that they can be repaired and returned to the cemetery. *All of the debris behind the building – and visible to those visiting the African American cemetery section – should be picked up and appropriately stored.*

The other structure, immediately to the northeast of the sexton's shed is a bathroom. This structure has a metal gable roof and is of weatherboard construction set on a concrete slab. At the rear there are two 6/6 inwardly projecting windows. At the front are two entrances. The building itself is divided into two small bathrooms, each with a toilet and sink. The front is screened with a dilapidated lattice, as well as overgrown shrubs.

Figure 15. Sexton's shed at the rear of the cemetery. Top view is oblique looking to the southeast, bottom view is looking to the southwest.

Figure 16. Debris behind the sexton's shed (top) and dilapidated condition of the bathrooms (bottom).

Figure 17. Bathroom condition at the cemetery.

These bathrooms are in deplorable, unsanitary condition and at least one was open at the time of this assessment, with the water running in the toilet. The building itself is in poor condition and its screening poses a significant threat to the public.

The structure appears more recent than the sexton's shed, perhaps dating to the first quarter of the twentieth century. Additional historical research should be able to determine when funds were appropriated for its construction.

Figure 18. The Memory Hill entrance gazebo. Today this structure serves as an information kiosk.

Until additional research is conducted, this structure, too, must be treated as a contributing element, comprising part of the cemetery's undocumented history. It does, however, appear to have been placed in very close proximity to graves. *The condition of the building requires immediate attention. I recommend that all toilet fixtures be removed and all water shut off to the building. The modern lattice screening should be removed and the shrubbery that screens the entrances should be removed or severely pruned for security reasons. Additional historical research should be conducted in order to better evaluate the building's history and its overall contribution to the cemetery.*

The Gazebo

At the entrance to the cemetery is a gazebo, today used for a very attractive display of the cemetery's history and a variety of brochures. The structure is set on what appears to be a historic foundation; the structure, however, is modern, built ca. 1970. It is possible that bricks from elsewhere were used in the foundation – the history of this structure is uncertain.

The gazebo is in overall good condition and it contributes to the historic character of the cemetery.

The Brick Vault

Memory Hill has one brick vault apparently identical to those found commonly in Savannah cemeteries. These are semi-subterranean, often with steps leading down 3 to 4 feet below grade. There are typically slate shelves where coffins were placed, with the doorway sealed between burials episodes. Chicora Foundation has conducted detailed research on these structures at Colonial Cemetery and that study should be consulted for additional construction details.[1]

[1] Michael Trinkley and Debi Hacker, *An Archaeological Examination of Four Family Tombs at Colonial Cemetery, Savannah, Georgia*. Research Series 58 (Columbia: Chicora Foundation, Inc., 1999).

Figure 19. Brick vault at Memory Hill. Of particular concern is the damage to the right pediment, the abundant previous repairs using inappropriate materials, the need for repointing, and the abundant growth that is damaging the mortar joints.

This is a unique tomb style at Memory Hill and it deserves particular protection and care.

There are a number of critical issues that require immediate attention:

1. *All vegetation on the structure should be removed by hand. No herbicide should be used since all contain salts that will soak into the brickwork and cause spalling and other damage.*

2. *The right pediment should be carefully inspected to determine if the crack (which has damaged the brick work, as well as opened mortar joints) is stable or represents a foundation problem. Repairs should be undertaken to address the issues identified by this more detailed assessment.*

3. *All loose joints should be raked cleaned and the entire structure repointed using a mortar that matches the historic mortar in color, texture, and tooling. The mortar should have greater vapor permeability and be softer than the existing masonry units. The new mortar must be as vapor permeable and as soft as the historic mortar. The sand in the mortar should also match the sand in the historic mortar. Care must be taken to distinguish the historic mortar from more recent repair efforts. The repointing should minimally meet the requirements established by the Secretary of the Interior in Preservation Briefs 2: Repointing Mortar Joints in Historic Masonry Buildings.*

4. *Based on the mortar repairs I have seen elsewhere in the cemetery, the City does not possess the expertise to conduct the repairs on this structure without conservation oversight. I recommend that Chicora or another architectural conservator evaluate the structure in more detail and develop specifications suitable for the needed work.*

This work should receive a very high priority since delay will endanger the long-term preservation of this structure.

Plot Fences

There are approximately 62 plots with iron fencing. These are significant resources, characteristic of the Rural Cemetery Movement and are critical components of the cemetery landscape. Consequently, they deserve special care and attention.

These fences, however, are in various states of deterioration ranging in condition from good to poor, forming a nearly perfect bell curve, with 31 in fair condition, 15 in good condition, and 16 in poor condition. Many, therefore, require immediate attention. Given the importance of these features to the cemetery landscape, they should be given a very high priority.

At the heavily deteriorated end of the continuum are fences with many missing elements and heavy damage including extensive corrosion and loss of fabric. These fences can be saved, but the effort will require very large sums of money and extensive work.

At the other end of the continuum are fences that have, over the years, received some minimal maintenance and therefore exhibit little corrosion of loss of fabric, little overall damage, and possess virtually all of their elements. These fences require – at the present time – relatively little work.

In the middle, representing the bulk of the fences, are those fences that with immediate attention can be saved. They all require painting and many require some minimal effort to reattach loose elements and seal the individual parts from water intrusion. These fences should be given the highest priority since immediate attention can prevent far higher repair costs in the future. By concentrating on these fences the City and the Friends can see the biggest "bang" for the costs involved.

Figure 20. Variation in fence conditions. The top photograph shows a fence in very poor condition, resulting from a lack of maintenance coupled with damage resulting from poor landscape practices. The lower photograph shows a fence in overall good condition, representing a very elaborate stalk design.

Figure 21. Fence problems. The top photograph shows corrosion occurring between railing components where moisture is drawn through capillary action and where caulk is critical. The lower photograph shows an inappropriate weld that prevents movement in the fence parts and damages the aesthetics of the fence. The weld also retains moisture, accelerating corrosion in this area.

Figure 22. Other fence problems. The top photograph shows a fence that has had only the exterior painted, allowing the interior of the ironwork to corrode. The lower photograph shows damage to the brick wall on which the fence is set. Appropriate maintenance requires that these walls be maintained using appropriate mortars that match the original in color, texture, tooling, and softness.

Figure 23. Examples of other amenities. The top photograph shows a no longer functional iron bench that should be either repaired or removed from the plot. The lower photograph shows a trellis that requires the same attention as other cemetery ironwork.

Painting

Absent historic documentation that suggests otherwise, flat or semi-gloss black is an appropriate fence color.

Sandblasting the ironwork should be prohibited – it is unnecessarily aggressive, has the potential to damage surrounding stone, and can result in unnecessary lead contamination. An alternative to such an approach is minimal wire brushing to release obvious scale and corrosion, followed by the use of a rust converter as a primer. Of the three that were successfully tested by the Canadian Conservation Center, Rust-Oleum's Rust Reformer is the least expensive and most readily available. We recommend two coats of the Rust Reformer. These can be applied over stable corrosion and the product does an excellent job of converting the corrosion into a stable base for a top coat of alkyd paint. A single coat is adequate and it should not be applied thickly, as thick coats hide detail, cure poorly, and will often prematurely fail.

All painting should be by brush – no sprayers should be used since they allow drift onto nearby stones. Tarps should be used to protect vegetation and adjacent stones from splatter.

This maintenance program will significantly improve the appearance of the ironwork in the cemetery and will help prevent additional corrosion and deterioration of the various fence components.

Reattachment of Loose Elements

Welding should be the last option selected for reattachment of loose elements. Most fences were intended to be constructed using "slip joints" that allow unrestricted expansion and contraction. Welding does not allow this critical movement and as a result can cause even greater damage. Moreover, much welding is inferior, using incorrect methods and leaving the piece more susceptible to corrosion than it was before. In addition, cast iron is particularly difficult to weld and those with limited experience can cause tremendous damage to the historic fabric.

Alternatives to welding include fabrication of connectors using 316 stainless steel that can be welded or brazed onto elements. Sometimes a metal filled epoxy is also an appropriate selection.

Prevention of Water Intrusion

Another very damaging factor in ironwork is the potential for water to find its way into the cracks and crevices, often through capillary action, causing extensive corrosion damage. Cracks and crevices should be caulked using a high grade, industrial moisture-cured, single-component, polyurethane-based, non-sag elastomeric sealant. Residential sealants, such as silicones, should be avoided.

Summary

Each of the fences should be evaluated by a conservator having experience in cemetery ironwork, such as Chicora. Individual treatment plans can be devised and treatments undertaken as funding is made available by the City. We recommend, however, that all of the middle category fences be treated within the next 2 to 3 years.

Other Lot Amenities

There are relatively few other lot amenities, although a few examples of iron benches and trellises exist in the cemetery.

The two iron benches we observed were both on plots and were no longer being cared for by the family. Both were heavily damaged and one poses an immediate hazard. The families on whose plots these are found should be contacted and requested to either repair or remove the items. If that is not done, then *the City should remove those that pose a hazard to the public.*

Figure 24. Fish ponds at Memory Hill. The upper two photographs illustrate the pond at the entrance to the cemetery; note the spalling stucco. The middle left photograph shows the corrosion to the inoperable foundation. The middle right photograph shows the new stucco on the rear fish pond is already beginning to fail. The lower photograph shows the rear pond, with stucco cracked and collapsing from the side walls.

Otherwise, items such as trellises and grave surrounds add character to the cemetery, representing Victorian elements that would have been common during the period when Memory Hill was most active. Every effort should be made to preserve and protect these features.

Fish Ponds

The cemetery contains two fish ponds – one at the front on the west side, the other at the rear on the east side. These pose a variety of problems and the Friends and City should carefully consider whether their continued operation is appropriate.

Most fundamentally, both ponds exhibit a variety of problems, including in one the deterioration of the metal foundation and inoperability of the pump to aerate the water, and in both the spalling of the stucco associated with the above grade containers. Although the rear pond has been recently repaired, the stucco on it is already failing – providing clear evidence that the material used were inappropriate.

In addition, the ponds require considerable maintenance – a commodity that appears to be in short supply at Memory Hill. The City and Friends should carefully consider whether these ponds are worth the maintenance effort that they would require if operated correctly.

Finally, the ponds would likely be considered "attractive nuisances." An attractive nuisance is an inherently hazardous object or condition that can reasonably be expected to attract children – and certainly an open body of water with or without fish is likely to fall into this category. The City should consult with its attorney to determine the level of liability they face – and the Friends should consider the potential for adverse publicity should a child drown in one of these ponds.

As an alternative to a pond, it may be possible to convert both to garden areas for annuals. This would retain the historic feature, albeit converted to a less hazardous function.

Recommendations

The sexton's shed, bathroom, and gazebo should be considered a contributing properties to the National Register eligible Memory Hill Cemetery. Consequently they should receive the care and attention appropriate to historic structures. The sexton's shed, in particular, requires immediate work to prevent further decay and deterioration.

The City should immediately fund a conservation assessment of the brick tomb. Subsequently, it will be necessary to fund repair efforts to ensure the long-term preservation of this unique feature.

The fences in the cemetery also require immediate attention, beginning with those rated as in fair condition. Conservation treatment proposals for these fences should be prepared by a conservator with experience in cemetery ironwork, focusing on painting, prevention of water intrusion, and reattachment of loose elements.

Other ironwork, such as benches and trellises, should receive treatment similar to the fences. Those items, such as damaged benches, that pose a safety hazard should either be repaired by their owners or removed from the cemetery.

LANDSCAPE MAINTENANCE

Staffing

Memory Hill Cemetery is cared for by Milledgeville's Public Works Department, using a combination of in-house employees and, primarily, state prison details. In conversations with the City Marshal, Mr. Jack Graham, I learned that the bulk of the employees in the crew used on the cemetery have a median salary of $17,000 a year, while the prison detail costs the City about $37,000 per detail (the City pays primarily for the guard's salary). This arrangement has suited the City since it has suffered from an inadequate budget. In fact, Mr. Graham reports that many of the staff the City hires come from past prison details, staying with the City only long enough to gain experience before seeking higher-paying jobs elsewhere.

The scenario presented, therefore, reveals that the labor pool responsible for Memory Hill is not only largely untrained, but there is little continuity.

Where prison labor has been found to work it depends on continuity and this requires that individuals with very long prison terms be selected for the work. For example, at the South Carolina Governor's Mansion and on the State House Grounds, long-term prison inmates, often "lifers" are selected, carefully vetted, and trained for landscape duties. That job becomes a source of pride and these two locations have exceptional grounds as a result. The same level of effort will not be found where prisoners are untrained, unskilled, and perform their duties for only a short period of time. As will be explained in detail below, *Memory Hill Cemetery is suffering as a result.*

Clearly changes are necessary – either prison labor can be used differently, selecting and retaining prisoners who will provide continuity, or it will be necessary to locate the funds to provide in-house staff paid a living salary and provided appropriate training.

Salary Ranges

While it is not my intention to mandate salaries, it is appropriate for both the City and the Friends to understand it is unlikely that Milledgeville will be able to find, much less retain, caring, dedicated, skilled workers using their current median salary. Unless the situation is improved it will be very difficult to improve the very poor landscape conditions at the cemetery.

While the median salary for Milledgeville's cemetery landscapers may be only $17,000 – the equivalent of $8.17 per hour, the U.S. Department of Labor reports that for 2000-2001 the median salary was $8.24, while for the more skilled (i.e., those responsible for pruning or application of chemicals) the median wage was about $10.61. For managers, it was $12.22. These translate into yearly salaries of $17,140, $22,068, and $25,418 respectively (and these figures are not adjusted for six years of inflation). *The City should strive to make their wages competitive.*

Level of Staffing

Our recommendation is that for the approximately 20 acres of Memory Hill Cemetery, an appropriate staffing level, year-round, would be one or two supervisors or foremen and five full-time employees.

The current staffing levels are far below this since the 8-12 person prison details come in only occasionally and remain only long enough to deal with the current problems. And as

explained earlier, they are unmotivated and untrained.

The essential difference between the City's current procedure and our recommendation is that we believe it is imperative that the staffing level be stabilized year-round with full-time, not part-time, employees. Moreover, these employees must be dedicated to Memory Hill and should not be transferred to other parks or grounds under any circumstances. Finally, as discussed below, they must also be appropriately trained.

Consequently, the Friends should lobby for a staffing level that will maintain the beauty, dignity, and historical significance of Memory Hill.

Staff Training

Sadly, professional training in the landscape industry, at least among the public, is undervalued. This contributes to rapid turn-over and inappropriate maintenance activities (seen throughout Memory Hill Cemetery).

While the one or two supervisory positions would clearly benefit from a 4-year horticultural degree, it is unlikely that the City can afford that level of education for its staff (however good such a background would be).

In 2005 the Associated Landscape Contractors of America (ALCA) and the Professional Lawn Care Association of America (PLCAA) merged to form the Professional Landcare Network (PLANET). This organization offers three certification programs that should be requirements for all of the Memory Hill technician-level staff.

The first is the Certified Landscape Technician – Exterior. The exam for this certification is a hands-on field test and candidates can be tested in Installation, Maintenance, or Irrigation. Technicians at Memory Hill should be certified in Maintenance. This would establish credentials by meeting international standards for safe and effective operation of machinery and demonstrating a thorough understanding of all facets of the position.

The second is Certified Turfgrass Professional – a comprehensive study of both warm and cool-season turfgrasses developed by the University of Georgia Center for Continuing Education. Certification in this area demonstrates a mastery of weed, insect and disease identification/control, as well as diagnosis of common turfgrass problems. The material supports Integrated Pest Management concepts and pesticide safety – significantly reducing the City's liability for operations.

The third is Certified Ornamental Landscape Professional. This certification emphasizes tree and shrub maintenance procedures with candidates concentrating on landscape trees and ornamental woody plant physiology, health care management, and establishment.

The City should either require each applicant to already be certified – or should provide up to a year to achieve certification. Regardless, the educational level and proficiency evidenced by certification should be a requirement for the Memory Hill caretakers.

There are training opportunities in the immediate area. For example, Central Georgia Technical College offers a degree program in Turf Grass Management which includes courses in turf grass and landscape installation. The Heart of Georgia Technical College offers a degree program in Horticulture, including classes in soils, installation, equipment use and care, weed control, and other topics. All are offered as night classes and the program can be completed in three quarters.

The Quality of Supervision

Regardless of the credentials or certification, the complexity of the Memory Hill facility requires that the technicians are well supervised and are held accountable for their performance. It is especially important,

therefore, that the supervisory positions be carefully defined. The selected individuals must not only be well trained and knowledgeable, but also possess demonstrated supervisory experience. The supervisors must be expected to work alongside the crews on a daily basis – this means that the City must not burden these individuals with administrative duties.

Continuity of the Staff

Maintaining the continuity of a maintenance staff with a commitment to the preservation of a historic cemetery is critical. It not only serves to help ensure the highest possible quality of care, but also allows the specialized knowledge that accrues to be transferred to new staff members over time.

Obtaining this continuity, of course, demands that the City provide a reasonable pay scale for new workers and ensure that staff does not feel trapped in a dead-end job.

Cemetery Trees

Selection Issues

We are told that many of the trees (and shrubs) in the cemetery have been selected by various groups or individuals and often planted without the knowledge or consent of the City. There seems to be little evidence that the plants selected are historically appropriate, suitable for the space selected, or appropriately cared for once planted. *All decisions appear to be ad hoc and this has created a number of problems in the cemetery.*

Cemeteries, in general, have historically been dominated by large deciduous trees, although evergreens such as cedar are also very common. They provide a distinctly inviting image for the visitor and passersby. These trees also provide some visual separation from adjacent buildings.

Ideally the trees selected should be historically appropriate. This means that they would have been available – and used – in the late nineteenth century in a cemetery context. In other words, all other issues being equal – plantings should focus on those tree species that are known to have been used.

Some trees, whether historically appropriate or not, should be avoided since they pose significant maintenance issues. These include trees that produce dense shade (causing problems with the turfgrass); trees that exhibit suckers or surface roots (also causing turfgrass problems, e.g., beech, honeylocust, linden, poplar, and willow); trees that drop large quantities of leaves, seeds, or sap (such as ash, black cherry, catalpa, ginko, horsechestnut, mulberry, and sweetgum) ; and trees that are especially weak or vulnerable to wind or ice damage (such as ash, Bradford pear, black cherry, pine, poplar, red maple, silver maple, tuliptree, willow, and white ash).

Table 2 provides an overview of some issues associated with some of the trees selected in the past. While diversification may be acceptable, it should not dilute the original design or intent. Therefore, *we urge care in selecting additional plantings, reducing the diversification and focusing on a smaller number of historically appropriate trees to maintain the historical integrity of the cemetery.*

Planting Issues

Locations chosen for planting should not interfere with gravestones, curbing, or fences. Issues of security should also be considered and the use of small trees that obscure eye level views should generally be limited or avoided.

Research is suggesting that trees, especially older mature trees, improve in health when turfgrass is removed under the branch spread and mulch is applied at a depth not exceeding 3 to 4-inches.

Table 2.
Suitability of Various Plants Present at Memory Hill Cemetery

Tree	Historically Appropriate	Weak or Vulnerable	Surface Roots	Litter	Pests	Shade	Other
Deodar Cedar	Exotic, introduced 1831	No	No	Little	Few	Moderate	Avoid roads and paths
Sugar Berry	Not an heirloom plant	No	Yes	Significant	Prone to rot	Moderate	Avoid roads and paths; self-seeds
Magnolia	Native, introduced 1734	No	No	Significant	Few	Dense	Requires pruning
Red oak	Not an heirloom plant	Yes	No	Significant	Few	Dense	
Water oak	Not an heirloom plant	Yes	No	Significant	Few	Moderate	Avoid roads and paths
White oak	Native, introduced 1724	No	No	Significant	Few	Moderate	
Willow oak	Not an heirloom plant	No	No	Significant	Few	Moderate	Avoid roads and paths
Live oak	Native, introduced 1739	No	Yes	Significant	Few	Dense	Requires pruning
Arborvitae	Native, introduced 1536	No	No	Little	Very sensitive	Dense	
Cherry laurel	Native	No	No	Significant	Few	Dense	Self-seeds
Crape myrtle	Exotic, introduced 1747	No	No	Little	Few	Moderate	Plant only mildew-resistant varieties
Dogwood	Native, introduced 1731	No	No	Little	Few	Moderate	Avoid full sun
Bradford pear	Not an heirloom plant	Very	No	Little	Few	Dense	Requires pruning
Kwanga cherry	Not an heirloom plant	No	No	Little	Very sensitive	Moderate	Short-lived; easily damaged
Japanese maple	Not an heirloom plant	No	No	Little	Few	Moderate	Requires pruning
Leyland cypress	Not an heirloom plant	No	No	Little	Very sensitive	Dense	Must be pruned
Podocarpus	Not an heirloom plant	No	No	Little	Unknown	Dense	Rather intolerant

Figure 25. Common tree problems at Memory Hill. The photographs illustrate a few of the large number of dead and dying trees in the Cemetery. These trees present significant hazards for both the monuments and also those visiting the cemetery. Unfortunately, they represent some of the largest and most historic of the trees. Identical, large caliper trees should be replanted.

Figure 26. Tree problems at Memory Hill Cemetery. The top photographs show trees that were planted and then largely abandoned. The lower left photograph illustrates a planting entirely too close to the brick plot wall. Within a few years this will result in significant damage to the plot. The lower right photograph illustrates trees planted too close to the roadway, necessitating an unnatural and inappropriate pruning to allow vehicular traffic.

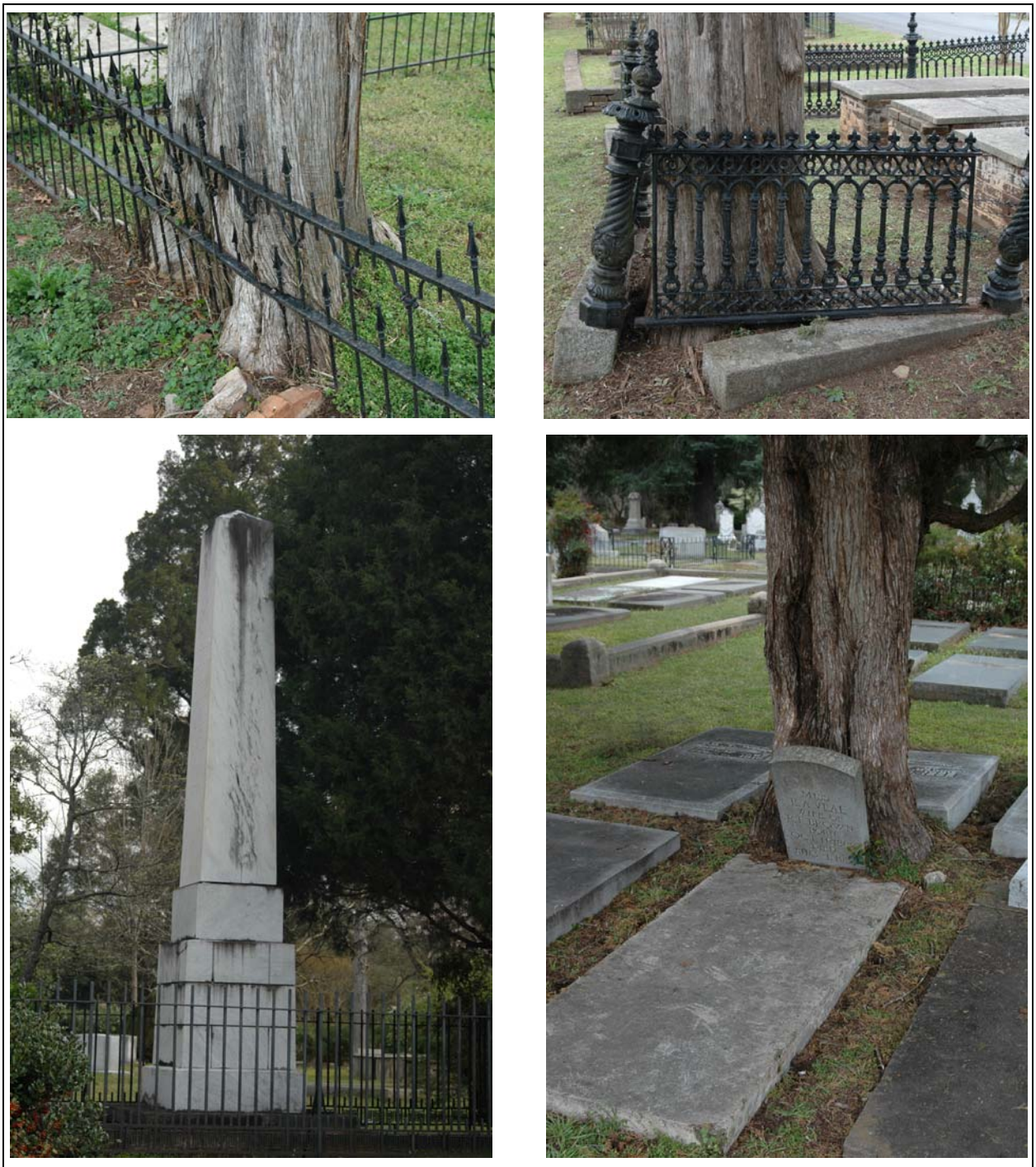

Figure 27. Tree and monument conflicts that require decisions to remove the vegetation, relocating the monument or fence, or prune the vegetation to reduce its impact.

Figure 28. Tree problems at Memory Hill. The top photograph illustrates incorrect planting of Leyland cypress. These trees have a spread of up to 25 feet and a height of up to 50, yet they have been planted in an area where their growth is stunted and will cause future problems. The lower two photographs show volunteer growth that is being ignored by current landscape practices. Left unrestrained these plants will cause significant long-term damage.

We observed a variety of planting problems – spacing that was too close, locations that would not provide for the long-term health of the tree, and inadequate or inappropriate care once planted. All of these conditions suggest that plantings are occurring without adequate training or horticultural experience. These problems detract from the cemetery and create future maintenance issues.

Maintenance Issues

Maintenance involves at least four basic issues: watering, fertilization, pruning, and pest control.

The City does not, on a routine basis, water trees in the Cemetery, relying instead on rainfall. While this is typically acceptable, the landscape plan should include provisions for deep-root water during periods of drought. Using a root feeder without fertilizer, it is possible to apply water 12 to 18-inches below the surface. This approach can not only be used during drought, but also during extended periods of dry weather during the winter (as long as the temperatures are above freezing).

There are also no provisions to provide deep root fertilization – an approach where the liquid fertilizer is injected into the soil with a probe, typically 6 to 12-inches below the surface at a spacing of about 2 to 3 feet. This process not only provides fertilization, but also some aeration of the soil. An alternative approach used a drill to excavate holes in a similar pattern which are then filled with a granular fertilizer. Either is acceptable.

While shoot growth (growth occurring in the present year) and foliage color are often used as indicators of nutrient deficiency, the best indicator of whether fertilization is necessary is a soil test. Samples should be taken every 3 to 5 years to determine whether any macro or micronutrients are lacking.

During this assessment we took several qualitative soil tests in the cemetery. All were very similar – the soil has a pH of 6.0, or acid. Nitrogen, phosphate, and potash levels were all low to non-existent. *The Memory Hill soils are entirely depleted of all nutrients and this is adversely affecting all vegetation in the cemetery.*

It is best to fertilize trees when they are actively growing and have available water to help absorb nutrients. At Memory Hill Cemetery this is typically from the spring, after new leaves emerge, through mid-season. Fertilizer should not be applied late in the season or during periods of drought.

In a cemetery setting organic fertilizers should be the primary choice. These materials, such as cottonseed meal and bone meal, have much lower salt indices than inorganic fertilizers – resulting in reduced salt uptake by monuments. This is important since salts cause staining, spalling, and deterioration of marbles, sandstones, brick, and even granites. In addition, organic fertilizers have a slower release rate and are easy on the root systems.

We observed considerable damage to the older trees in the cemetery. Many have already been removed and others are scheduled for removal. This is a very serious situation – the historic trees in the cemetery are being lost and those being planted are largely not historically appropriate.

There are a number of trees which require pruning for either thinning or cleaning. Thinning is a technique of pruning that removes selected branches to increase light and air movement through the crown. This also decreases weight on heavy branches. The natural shape of the tree is retained and its overall health is improved. In cleaning, the pruning removes branches that are dead, dying, diseased, crowded, broken, or otherwise defective. This includes narrow crotches.

Trees should be pruned in such a manner as to preserve the natural character of the plant and in accordance with ANSI A300 (Part 1) - 2001 standards.

Table 3.
ISA Certified Arborists in the Milledgeville, Georgia Area

Bailey, Kenneth		(706) 769-0188
Barneycastle, Chris	Barneycastle Forestry Services, Inc., Snellville, GA 30078	(770) 979-2770
Batchelor, Mark		(706) 342-0353
Bell, Deborah	Newton County Government, Covington, GA 30014	(770) 784-2197
Braswell, Kirk		(912) 265-0024
Budd, Beryl		(770) 784-2480
Cook, David		(770) 775-3720
Edmonds, Jim	Georgia Tree Service, Greensboro, GA 30642	(706) 467-3297
Herndon, Robert		(770) 267-6789
Huffman, Mike	City of Macon GA - City Forester, Jeffersonville, GA 31044	(478) 945-3031
Kepp, Tommye		(706) 769-9267
Lazenby, William	Arbor Creek Forestry, Gray, GA 31032	(478) 986-0809
Letson, Marsh	Covey Rise Tree Farm, Sparta, GA 31087	(706) 444-9021
Marable, Brent	Tree Introductions, Inc, Bishop, GA 30621	(706) 769-1202
McGukin, Harold		(478) 987-1886
McIntyre, Darryl		(478) 847-5172
Meads, Gail		(770)757-4451
Noyes, Michael	Piedmont Tree Specialties, Macon, GA 31210	(478) 738-0647
Ogletree, Stanley	Bear's Tree Service, Athens, GA 30605	(706) 546-6187
Paschal, Suzanne		(706) 769-4002
Peed, Matthew	Piedmont Tree Specialties, Inc., Macon, GA 31204	(478) 738-0647
Rayfield, Charles	Rayfield Tree Care, Inc., Loganville, GA 30052	(770) 554-2022
Rice, Paul		(770) 504-7885
Turner, Arthur	Pike Electric Inc., Jackson, GA 30233	(770) 601-2431
Walker, Jerry		(770) 227-0411
Wilburn, Charles	Asplundh Tree Expert Co., Macon, GA 31204	(267) 446-4910

In pruning, branches should always be cut just beyond the branch collar (an extension of the main stem) and not flush with the trunk. Large branches should be removed with three cuts to prevent tearing of the bark which can weaken the trunk and lead to disease.

Trees should be inspected for potential threats to monuments, as well as general health. Ideally these inspections should be made yearly and after any storm where the winds exceed 55 mph. They should be pruned to remove potentially hazardous dead wood on a yearly basis, but safe pruning every 5 years by a certified arborist is acceptable. Plywood shelters or timber cribbing should be used as necessary to protect stones and monuments during the pruning process.

There are some situations in the cemetery where plantings – intentional or voluntary – have grown to interfere with stones or fences. In these cases a decision needs to be made concerning the value of the planting vs. the value of the monument. Where the tree has greater value (i.e., it is a specimen tree or is part of the pre-1950 plantings in the cemetery), it may be appropriate to slightly relocate the monument – moving it to a location where additional damage will be avoided. Otherwise, the tree should be removed. The trunk should be cut as close to the ground as possible, leaving the stump in place to decay naturally. No chemical additives should be used to hasten decay, although it is acceptable to paint an herbicide on the stump if it is a tree that will promote suckers.

Pest Control

During this visit we observed no obvious evidence of pests or disease and we

Figure 29. Tree that was planted, inappropriately staked, and then forgotten.

understand that relatively little pesticide is applied by the City. This is good since many pesticides, because of their salt content, can harm monuments. Where possible Integrated Pest Management practices should be implemented. Where chemical pesticides are necessary, they should be applied as a coarse spray to prevent drift.

Summary

Taken together, these problems suggest a lack of expertise on the part of the City staff, a lack of staff to do and appropriately supervise the necessary work, a lack of direction, or inappropriate direction. Whatever the case, there must be immediate changes to arboricultural practices.

The cemetery, using a certified arborist, should assess the health and condition of the existing trees and develop a long-term tree plan. Many of the newer – and inappropriate trees – should be removed. As older, historic trees are removed, new trees should be planted.

All replacement trees should be of at least 2-inch caliper and meet the minimum requirements of the American Nursery and Landscape Association's American Standard for Nursery Stock (ANSI Z60.1-2004). It may be appropriate to use a mix of fast-growing but short-lived trees intermixed with slow-growing but long-lived trees to create a planned appearance.

As the trees are being assessed, they should also be pruned and fertilized as necessary. All pruning within the Cemetery should be performed by an International Society of Arboriculture (ISA) Certified Arborist, preferably one who is also an ISA Certified Tree Worker/Climber Specialist. Table 3 provides a list of Certified Arborists for the Milledgeville area.

Shrubbery

Selection and Planting

There appears to be no planting plan and decisions are made ad hoc, often by groups or individuals without the approval of the City. As a result selection and planting issues for shrubbery are the same as previously discussed for trees. Shrubs are often inappropriate, are planted too tightly, and are given no care once planted.

This has had the result, over time, of dramatically altering the historic landscape and appearance of the Cemetery. Shrubbery is as important to the appearance of Memory Hill as its trees and the City must begin to take a much more proactive approach with much more careful maintenance of the shrubbery.

Figure 30. Examples of shrubbery problems at Memory Hill. The top left photograph shows a boxwood planted at the entrance to a plot, hindering access. The top right photograph illustrates poorly maintained plantings taking over the plot. The middle left photograph shows planting that, in time, will create a screen, reducing security and providing hiding places. The middle right photograph shows plantings placed too close together. The bottom photographs illustrate the densely planted and cluttered landscape in Memory Hill.

Figure 31. Shrubbery problems at Memory Hill. The upper left and lower right photographs illustrate incorrectly pruned shrubs. The upper right photograph illustrates incorrect pruning of boxwood to avoid a stone. The lower left photograph illustrates dead wood inside an inappropriately sheared boxwood.

Figure 32. Shrubbery problems at Memory Hill include dead boxwoods, shrubs so heavily pruned that they have been killed, shrubs that require pruning and rehabilitation, and shrubs that are overgrown with weedy species, indicating a lack of care.

Like the recommendations for tree selection, the ideal is to carefully select from a narrow range of historic plantings that are known to have been appropriate for a cemetery, including boxwoods, elaeagnus, forsythia, and crape myrtle. Consequently, these and similar historic planting should be chosen to replace existing shrubs when necessary. In general, historic shrubs should be replaced with like materials.

Fertilization

As with trees, the best indication of the need for fertilization is a soil test, which should be performed at least every two to three years. While some shrubs, such as boxwood, provide an indication of deficiency through the yellowing of lower leaves, such evidence can be missed and does not indicate the extent of the problem.

Where fertilization is necessary most shrubs, because of their shallow root systems, respond adequately to broadcasting the appropriate organic fertilizer around the base of the plant, typically at the drip line.

Most shrubs should be fertilized when they are actively growing and have available water to help absorb nutrients. Broad-leaved evergreens, such as boxwood, are best fertilized in the winter or spring. Summer or fall fertilization of these plants may induce late season growth that is highly susceptible to winter injury. Some plants which exhibit episodic growth, such as forsythia, may benefit from a more continual fertilization program based on soil analysis and plant growth response.

Pruning

It is again in the category of pruning maintenance that we see the greatest problems at Memory Hill Cemetery. In general the shrubbery has not only been over pruned, creating unnatural and fanciful shaped creations, but often the pruning (or absence of correct pruning) has allowed the accumulation of significant amounts of deadwood.

When shrubs are headed back or sheared routinely (as we see at Memory Hill), a lot of dense, thick new growth is produced near the outer portions of the canopy. As a result, less light reaches the interior portions of the plant, leaves within the canopy become sparse, and the plant appears stemmy and top-heavy.

To avoid this problem, head back the shrub's shoots to several different heights. When heading back, make the cut on a slight slant one-quarter inch above a healthy bud. The bud should be facing the direction preferred for new growth.

Thinning (cutting selected branches back to a side branch or main trunk) is usually preferred over heading back. Thinning encourages new growth within the interior portions of a shrub, reduces the size and provides a fuller, more attractive plant.

There are examples of shrubbery at Memory Hill that have been planted too close to stones and monuments. As the plants have matured, they have overgrown their location, over taking the monuments. In some cases the shrubs have been very unnaturally pruned around the monument. In such cases the correct approach is to prune severely, a process called renewal pruning, to bring the plants back into scale with their surroundings.

Renewal pruning means cutting the plants back to within 6 to 12 inches of ground level. In this instance, timing is more important than technique. The best time to prune severely is before spring growth begins. Pruning in late fall or midwinter may encourage new growth which can be injured by cold. Renewal pruning results in abundant new growth by midsummer. Once the new shoots are 6 to 12 inches long, the tips should be pruned to encourage lateral branching and a more compact shrub.

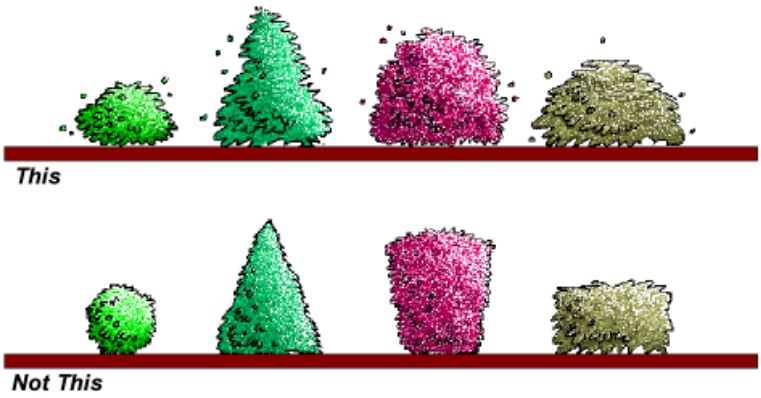

Figure 33. Correct and incorrect profiles of shrubbery. Most Milledgeville Cemetery shrubbery is over sheared into unnatural and fanciful shapes inappropriate to the historic landscape.

Renewal pruning works well with most broadleaf shrubs, while narrow-leaf evergreens (such as boxwood) do not respond well when severely pruned and may actually decline. A better approach for these narrow-leaf evergreens is cutting them back slightly and transplanting – moving them away from the stones they are obscuring.

An alternative to the drastic removal of top-growth on multiple stem shrubs is to cut back all stems at ground level over a period of three years. At the first pruning, remove one-third of the old, mature stems. The following year, take out one-half of the remaining old stems and head back long shoots growing from the previous pruning cuts. At the third pruning in yet another year, remove the remaining old wood and head back the long new shoots.

Common landscape shrubs, like crape myrtle, are often pruned as tree forms. The best time to begin a tree form is in late winter before spring growth begins. It is easiest to start a tree form from a 1-year-old plant, but you can also use older, mature plants. Select one to three of the most vigorous growing trunks or upright branches (depending on the number of main trunks desired) and prune all other upright (vertical) branches to ground level. Remove lateral branches that are less than 4 feet off the ground along the main trunk and thin the canopy by getting rid of inward growing branches or branches that cross one another. Avoid shearing since this will result in a high-maintenance topiary that is out of place in the cemetery setting.

In general, summer-flowering plants should be pruned before spring growth begins since these produce flowers on the current season's growth. Spring-flowering plants, such as forsythia, should be pruned after flowering since they produce flowers on the previous season's growth.

A problem often seen with the boxwoods at Memory Hill Cemetery is that continuous shearing has caused a thick outer shell of foliage which created dense shade on the interior branches. This continuous shade has resulted in significant foliage drop, decreasing the health, value, and aesthetics of the plants.

Boxwoods are best pruned, rather than sheared, to maintain a natural shape and to keep plants at a desired size so that they do not outgrow their landscape too quickly. With much deadwood on their interiors significant rehabilitation is necessary. An excellent instruction on boxwood pruning is provided by the U.S. National Arboretum at http://www.usna.usda.gov/Gardens/faqs/BoxwoodThinning.html.

Some of the boxwood at Memory Hill also exhibit winter damage. In some cases the entire plant has been killed. In other cases only the outer (typically sheared tops) have been damaged. All of this damage should be pruned off in the spring, allowing new growth to replace it. Problems such as this can also be

minimized by ensuring adequate late fall watering, since drought tends to stress the boxwood.

The shrubbery at Memory Hill has been ignored for a very long period of time and, as a result, many of the plants are in very poor condition. Those which can be saved by careful pruning should be. Those which are dead or which cannot be rehabilitated should be removed.

The condition of the shrubbery at Memory Hill provides an excellent example of why the use of untrained prisoners should be abandoned and why only certified, trained technicians should be allowed to work within the cemetery.

Turfgrass Issues

The bulk of the cemetery is covered in a centipedegrass, a grass that is well adapted to infertile soils. It spreads by stolons, producing a medium-textured turf. Maintenance requirements are low when compared to other turfgrasses, and it has fair to good shade tolerance and good drought tolerance. While on the edge of its preferred habitat, it appears to be doing well at Memory Hill and we recommend no change.

Mowing

Most of the mowing is conducted using 48-inch deck mowers. These mowers are entirely too large for the cemetery and their use no doubt explains the extent of damage we observed to stones from mowing practices.

We recommend the use of no riding mowers and push mowers should be no larger than 22-inches. A good choice is the Jacobsen line; intended for golf course work, their push mowers have good performance and durability.

Mowing during the growing season is conducted about every two weeks, depending on the availability of adequate crew. While mowing less frequently may have some appeal, the removal of grass adjacent to monuments would become more difficult with longer and thicker grass blades – and this in turn could lead to more damage to the stones. *The current frequency of mowing should be maintained.*

Clippings should not be bagged – not only can the bag cause damage to stones and make maneuvering the equipment more difficult, but the clippings when left on the ground will provide nutrients.

In addition to mowing, nylon trimmers are used around monuments, coping, fencing, and plantings. This is an acceptable practice, but it is critical that a very light weight line be used – along with worker attention – to minimize damage to soft stone such as marble. Although the staff thought that .105-inch line was being used, we discovered during our assessment that lines up to .155 inch were being used. All of the lines being used at Memory Hill are very harsh and should be immediately replaced with a .065-inch line.

We illustrate the damage done to markers by the impact of a mower in Figure 34. All mowers used in the cemetery should have a closed cell foam pad attached to the sides and front edges. This bumper will help to minimize accidental damage. We also illustrate in Figure 34 the damage that can be caused by the use of nylon trimmers with line that is too heavy.

Fertilization and Weed Control

The cemetery staff does not conduct routine soil tests and no fertilization is applied – this is in most cases probably not a significant issue as centipedegrass requires relatively little fertilization and additional nitrogen would simply require more frequent mowings. Nevertheless, *we do recommend several soil tests, primarily to determine the acidity of the soil (which may need adjustment) and to allow an evaluation of the need for nitrogen and potassium (centipede does not generally receive phosphorus fertilizer).* The

Table 4.
Maintenance Schedule for Centipedegrass

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Mowing		Mow at 1" at greenup				Mow at 1½"			Raise to 2" before frost			
Fertilization	Test for pH, nitrogen, and potassium											
Pest Control	White grubs are largest threat, treat as necessary											
Weeds		Preemergence		Post-emergence, avoid stressing lawn								
Renovation					Sod							
Irrigation			Irrigate to prevent drought stress									

addition of potash in September through November may enhance winter hardiness. As previously discussed, *in order to minimize salt uptake by the stones, slow release organic fertilizers should be used and inorganic fertilizers should be avoided.*

As previously discussed, our soil tests reveal pH levels of about 6.0 and virtually no discernable levels of nitrogen, phosphorus, or potash.

The cemetery does not treat the lawn for weeds, although at the time of our assessment the City was entering into an agreement to begin treatments (no details of this treatment were known at the time). Many herbicides do contain salts and these can migrate into stones (especially sandstones and marbles), causing discoloration, spalling, and other damage. Nevertheless, at the time of our visit, the lawn did exhibit a very heavy infestation of early season weeds and a preemergent treatment would be appropriate. One approach that has been used with success to rehabilitate centipede lawns is the use of products such as PBI Gordon's Speedzone. This is a carfentrazone-ethyl combination that provides rapid and effective broadleaf control (it will not affect grassy weeds). Best control is obtained when applied as an early postemergent when the weeds are young and actively growing. It is a contact and systemic herbicide with little or no residual activity. An additional treatment should be applied in the fall.

One approach, of course, is to avoid broadcast herbicides and, instead, use a coarse spray to treat limited areas. Using this approach it would be possible to treat for many annual weeds and over several years dramatically improve the appearance of the cemetery. Care must be taken to avoid spraying the monuments, so we realize the application will not be complete or perfect, but over several years the prevalence of these weeds will decline. Postemergent weeds may be controlled in the same manner.

Pest Control Practices

Similarly, the cemetery does not undertake any pest control practices, except (we are told) for treatment of fire ants which are treated using a "poison."

Fire ants are a significant problem at the cemetery and we identified a number of active mounds throughout the 20 acres. These pests are not simply an aesthetic nuisance, obscuring stones and creating mounds, but also hinder appropriate lawn care activities, such as mowing. They are also a public health threat and present a significant liability to the City. One survey done in 1998 concluded that 33,000 people in the state of South Carolina sought medical attention as a result of fire ant stings. Of those 15% had severe localized allergic reactions and 2% had severe systemic reactions resulting in anaphylactic shock.

We recommend that, minimally, individual mounds be treated with a product such as Amdro (hydramethylnon). An even better approach is the use of Amdro as a broadcast fire ant baits while fire ants are foraging. After 10-14 days it should then be used

Figure 34. Typical lawn problems at Memory Hill. The upper left photograph illustrates heavy broad leaf weeds. The upper right photograph illustrates sparse grass on a terrace. The middle left photograph illustrates mower damage – caused by operating the mower over the stone. The middle right photograph illustrates impact damage caused by a mower. The lower left photograph illustrates nylon trimmer abrasion of a stone. The lower right photograph illustrates a major fire ant nest – these are common in the cemetery and pose a significant hazard.

Figure 35. Other landscape problems. The top photographs show the appropriation of hose bibs for individual lots. This practice is costly to the City, denies access to others, and causes maintenance problems. Consequently, all such hoses should be immediately removed from the cemetery. The bottom photographs illustrate several "alternative" plot treatments that are historically inappropriate and that detract from the historical integrity of the cemetery. Graveled and sanded plots also do not stop weeds and require maintenance that is typically not provided.

as an individual mound treatment on any mounds that continue to be a problem. This approach should be used twice a year, typically in April or May and again in September or October.

Renovation

There are a few areas in Memory Hill where the centipedegrass has almost completely failed or where it has been heavily invaded by weeds. We recommend that the City implement a renovation program in these areas in order to establish a good stand of centipedegrass.

In most areas lacking grass, it appears that one significant problem is compaction and infertility. Given the depth to burials in Memory Hill, it is entirely appropriate to remove the upper 6-9 inches of unsatisfactory soil and replace it with a prepared soil. Such removals should be evaluated for archaeological remains, but we observed few indications of archaeological resources in these areas.

With a good soil bed, centipede sod should be laid in a checker-board pattern with the ends butted up tight to allow for shrinking when the sod dries. Rolling of the sod after placement will allow for a good sod to soil contact, enhancing rooting. Frequent watering is

needed during the first few weeks until the plant establishes a good root system, but this can be provided by spot watering.

In heavy shade areas where centipedegrass fails to perform effectively, the City should remove the sod (which rarely does well in such circumstances) and replace it with 3-4 inches of mulch. This will also promote better tree health.

Irrigation

Memory Hill Cemetery does not have an irrigation system and, in general, we do not recommend them – they use very large quantities of water, their placement can interfere with markers and graves, and their operation can cause erosion to stones.

The Cemetery does, however, have water lines with hose bibs scattered throughout the cemetery. There is no plan of the lines and when there are leaks or problems considerable time is spent attempting to identify the location of the line involved.

We recommend that the system either be abandoned and replaced or that it be modified (whichever is less expensive) so that hose bibs are available only along the roads and avenues in a simple grid pattern. This will simplify the overall system, while still allowing specific lawn areas that might be stressed by drought to be watered as needed.

We also noted that some bibs have been "appropriated" by individual lot owners, running hoses from the bib to their specific lot and plantings. This is not appropriate and the practice should be immediately discontinued. The City should remove all such hoses from the cemetery. Individual lot plantings should be selected for drought resistance and should rely on the use of public water for their existence.

None of bibs have anti-siphon devices installed. Such devices prevent possibly contaminated water from being drawn back into the city water supply should there be a drop in water pressure. The city should install such devices on all bibs immediately.

Plot Weed Control

In some sections of the cemetery lot owners have chosen to use gravel, retained by coping, rather than allow the plots to be grassed. Often lot owners do this thinking that it will reduce maintenance. Unfortunately, as shown by this study, this is rarely the case. In fact, these graveled lots almost always present a variety of long-term maintenance problems and the City should discourage the practice whenever possible.

Too often the lots, once laid, receive no additional maintenance by the families. As a result, the gravel thins through time, ultraviolet light breaks down the underlying weed block, exposing it and allowing further deterioration. In addition, weeds will often begin to grow through the weed block and gravel. The typical solution to this, rather than laborious hand weeding, is to apply herbicides. Since there is rarely an effort made to prevent future weeds, chemical control becomes a routine practice – causing long-term damage to the memorials. In addition, the weeds killed by the herbicide create a disheveled appearance that detracts from the overall cemetery aesthetics.

Where families have chosen this practice and are unwilling to allow grass, they should be informed that it is their responsibility to replace weed block and periodically infill plots with additional gravel in order to keep them maintained. With the realization of that gravel is not a "silver bullet," but will require long-term maintenance, families may be willing to allow plots to be converted to grass which is more historically appropriate and dramatically softens the cemetery landscape.

A variation we observed at Memory Hill involves the use of sand, rather than stone, for the plot. This is inappropriate in a historic

cemetery and detracts from the landscape character and setting. Just as cities enact and enforce zoning laws to protect property values in neighborhoods, Milledgeville should review the practices which provide no guidance or quality control concerning plots.

Landscaping in the African American Cemetery Section

While there can be no doubt that the predominately white cemetery section has been over-landscaped, creating a cluttered and confusing assortment of historic and non-historic plantings, the African American cemetery has been almost entirely ignored. As a result, its appearance can only be described as bleak and forlorn.

It is appropriate that some of the funds expended in landscaping be devoted to the African American section. This would not only reduce the clutter in the predominately white section, but would also assist in increasing the diversity and appropriateness of Victorian plantings in the African American Section.

Plantings that we have previously identified associated with African American cemeteries of the same approximate age include first breath of spring, nandina, camellia, yucca, crape myrtle, canna lilies, climbing or rambling rose, trailing verbena, spiraea, Japanese privet, fragrant tea olive, and prickly pear cactus and upright prickly pear cactus. Trees that are particularly appropriate include eastern red cedar, and arborvitae. Bulbs are also very appropriate, especially lining graves, and include iris, daffodils, day lilies, and snow bells.

We note with some concern that the City has allowed a memorial to an individual, not buried in the African American section, to be placed in an area that may well have contained burials. It is important to realize that not all African American graves, by choice, are going to be marked. Consequently, simply because one sees no graves is not a good or satisfactory indication that none exist. Moreover, cemeteries are inappropriate locations for memorials of the type erected in this location. It should be removed immediately and relocated either on the plot for this individual or elsewhere in the City.

Recommendations

The City should retain a minimum of two permanent, full-time supervisors exclusively for Memory Hill Cemetery.

The City should retain six permanent, full-time (year-round) technicians exclusively for Memory Hill Cemetery. These technicians should be, at the time of their employment or within the first year, certified by PLANET in the fields of Landscape Technician – Exterior, Turfgrass Professional, or Ornamental Landscape Professional.

The City should work to ensure of continuity of the staff by providing appropriate pay levels, fringe benefits, and educational opportunities.

Tree selection within the Cemetery should be focused on historically appropriate species, based on period lists and known cemetery use. Species should, however, be evaluated to eliminate those with problems such as suckers, surface roots, inherent weakness, etc. The Cemetery should develop a tree plan to ensure that when any tree must be removed, an appropriate replacement is planted in its place.

Trees within the cemetery should be fertilized on a routine basis and should be professionally evaluated and pruned at least once every 5 years by an ISA Certified Arborist. All trees should be inspected yearly and after any storm with winds in excess of 55 mph.

The Cemetery evidences a number of tree maintenance issues, likely the result of inadequate staff and the use of individuals with inadequate training and expertise. Only

Figure 36. Landscape issues associated with the African American section of Memory Hill. The upper photograph reveals the bleak appearance of the African American section, which stands in stark contrast to the over-landscaped predominately white section. Efforts should be undertaken to improve the African American section using appropriate plantings. The lower photograph shows a private memorial that the City allowed, inappropriately, to be erected on the African American cemetery. This memorial should be removed.

ISA Certified Arborists should be responsible for tree pruning and maintenance.

The Memory Hill Cemetery shrubbery is in particularly poor condition, evidencing years of neglect and/or inappropriate pruning. There is much deadwood, especially in the boxwoods. Much of the shrubbery requires renewal pruning. We recommend that if the City cannot devote trained staff to care for these issues that they let a contract specific for the renewal and rehabilitation of the shrubbery on the Cemetery property.

As with the trees, there are many shrubs that are incorrectly planted, resulting in a cluttered appearance. The City should prohibit all future plantings unless they are approved by a carefully crafted long-range plan.

The nylon trimmer line being used by the City is too heavy and is damaging the stones. It should be replaced with a line no thicker than .065-inch.

Soil analysis should be conducted to determine if adjustments are necessary for the turfgrass.

Limited preemergent and postemergent weed control should be instituted at the Cemetery using liquid herbicides applied as a course spray, taking care to avoid stones. The herbicides will affect the stones and this work will need to be very carefully done to ensure that the stones are not damaged.

The Cemetery has a significant problem with fire ants. We recommend, minimally, individual mound treatments using Amdro. A better approach would be a twice yearly program of Amdro bait application, followed in 10 to 14 days by the treatment of any mound that is still active. Because of the liability that fire ants pose, this program should be implemented immediately.

Excess, damaged, or no longer functioning hose bibs throughout the Cemetery should be capped and removed. Anti-siphon devices (vacuum breakers) should be installed on all bibs throughout the Cemetery. Hoses to specific plots should not be allowed.

The use of gravel or sand in plots should be discouraged. Where present incentives should be offered to convert to grass, which is more historically appropriate and easier to maintain.

OTHER MAINTENANCE ISSUES

Plot Coping

Family plot copings are common in Memory Hill and are an integral part of the historic landscape. Found in both the white and black sections, they include both traditional stone copings and low brick walls. Unfortunately, they have not been appropriately maintained and today evidence a broad range of serious problems.

In some cases the problem is limited to displaced sections or corner posts. In other areas sections are broken and displaced. At least one section reveals extensive loss with very poor efforts to stabilize the area. These problems not only detract from the aesthetics and historical integrity of the cemetery, but in many cases also pose a significant liability to the City.

Where possible the coping should be repaired and reset. This may require some removal of soil and releveling or may require that coping displaced from brick foundations be reset using a high lime mortar. In some situations it may require that a new Portland cement footing be prepared in order to appropriately support the coping or wall.

Where marble coping is broken the City should compare replacement cost with the cost of repair. Marble costs have increased dramatically recently, so repair is probably more cost effective. Nevertheless, the City may be able to acquire sections at a reduced price and use their off staff to reset the broken sections.

Displaced Stones

There are displaced stones throughout the cemetery, almost always in plain view. Few, however, are being replaced or even being picked up and secured. As a result, stones are being routinely damaged by mowing activities and present an attractive target for thieves and souvenir hunters. Stones that are collected are so poorly stored we question whether they are better off under the control of the City then they would be left scattered in the cemetery.

The City, in conjunction with the Friends, should develop a program to either reset stones where possible or collect these fragments, mark where they were found, and securely store them under locked and inventoried conditions until such time as a repair can be made.

Artificial Flowers

At the time of our visit in late March the cemetery was littered with fading and decaying plastic Christmas decorations. These detract from the dignity and beauty of the cemetery and individual lots. They also never decompose, but continue to litter the landscape until eventually collected and disposed of.

It is curious that one reason burial plots in Memory Hill are still so much in demand is the historic ambience of the property – yet that ambience is being damaged by decorations that have, at best, outlived their appropriateness and, at worst, are entirely inappropriate for a historic cemetery.

The ideal would be to allow only fresh flowers on Memory Hill graves. As the flowers faded, even if not removed, they would mulch into the landscape and pose little or no maintenance problem. If the City is unwilling to take this very appropriate and necessary step, then minimally the existing requirement that all flower decorations either be removed by lot owners or cemetery staff should be enforced. Article I, Section 26 - 20c of the City Code

Figure 37. Damaged plot copings. These photographs document the extent of damaged coping and plot walls throughout the cemetery. In some cases repair is fairly simple and will involve simply resetting the existing coping, perhaps with a better foundation, or perhaps reattaching loose elements using an appropriate high-lime mortar. In other cases the damage is so severe that the wall will need to be rebuilt.

Figure 38. Maintenance problems. The upper photographs examples of damaged or failed brick walls that require immediate intervention. The middle two photographs provide examples of displaced or "lost" stones in the cemetery that require collection and safe storage. The bottom two photographs show faded grave decorations that require removal by the City. We recommend that arrangements be removed every two weeks.

specifies that "the city may remove any and all dead flowers from any grave in the cemeteries." Article I, Section 26-22 of the Code further prohibits the leaving of rubbish of any description on the cemetery lots. The City must begin enforcing these regulations if the historic character and dignity of Memory Hill is to be preserved.

Signage

Signage is of four basic types: identification, regulatory, informational, and interpretative. They are generally recommended in this same priority.

Identification signage might include the name of the cemetery and might also include the cemetery's date of founding and historic designation (i.e., listed on the National Register).

Memory Hill is identified at the main entrance by a bronze National Register plaque. This is probably adequate.

Regulatory signage specifies laws, regulations, or expected standards of behavior. We observed no regulatory signage during the assessment and recommend that the City develop signage dealing with, minimally, these issues (perhaps with some modifications of language as might be needed):

- Many of the stones in this cemetery are very old and may be easily damaged. Consequently, absolutely no gravestone rubbings will be allowed.
- The stones and monuments in this cemetery are fragile. Please refrain for leaning, sitting, or climbing on any monument or mausoleum. All children must be escorted by an adult.
- Absolutely no alcoholic beverages or fireworks are allowed in the cemetery. Proper conduct is expected at all times.
- No pets are allowed in the cemetery.
- Flowers will be removed by the cemetery staff 15 days after holidays or when the arrangements become wilted and unsightly.
- No plantings are allowed without the prior written approval of the City of Milledgeville. The City will enforce its right to remove any plantings deemed inappropriate, diseased, or damaging the cemetery.
- For additional information concerning burials, plots, or maintenance issues, please contact the City Marshal at 478-414-4037

Other issues that the City should consider may include littering, the cemetery being under City of Milledgeville Police jurisdiction, and the prohibition of skates and skateboards.

The City may wish to develop a coordinated signage system, perhaps using a black background and white lettering. This would present a dignified format that is visually compatible with the grounds and easy to read.

The last two types of signage are information (for example, directional signs or street names) and interpretative (information on historic people buried in the cemetery).

Informational signage is limited to section designations and a sign for the burial ground of the State Hospital. A local funeral home has donated granite markers with section designations. These are attractive and the material readily blends into the historic landscape. Many State Hospitals are taking a more proactive interest in how the remains of their patients have been treated. The Friends should consider contacting the Georgia Department of Human Resources, Division of Mental Health, Developmental Disabilities and Addictive Diseases to see what funds are

available to increase interpretation of this section.

Thus far the City and Friends have chosen to use the gazebo and a series of brochures in lieu of interpretative signage. This reduces the distraction that can be caused by signage and we support this decision.

The gazebo displays are attractive and informative. They should be maintained.

We identified three brochures: "Ten Notable People of Memory Hill Cemetery," "Revolutionary Soldiers of Memory Hill Cemetery," and "Memory Hill Cemetery and the Civil War." We encourage the Friends to develop at least three additional brochures: one on the history of the cemetery that could perhaps show how the cemetery has expanded and might include some early photographs, another that focuses on the African American section perhaps explaining the nature of black mortuary customs, and perhaps a third that would address the role of women in Victorian society or perhaps mourning customs – something other than the normal "famous people" approach.

The current brochures are printed inexpensively, but effectively. The format and type face is easy to read and attractive, especially for such a cost-effective piece. They are entirely adequate.

We are disappointed to hear that local groups, such as the Sons of Confederate Veterans (SCV), have had no interest in picking up the cost of these brochures. We believe that groups such as the SCV, United Daughters of the Confederacy, and Daughters of the American Revolution should provide support for topical brochures. If such support is not forthcoming then the Friends should consider dropping topical brochures for one or two more general interest brochures.

Monument Maintenance

During this assessment a small number of previously repaired monuments were identified. Without exception these old repairs are substandard in both materials and workmanship.

We understand that the City has undertaken some repairs, while others may have been performed by local companies at the behest of the lot owners. Although we suppose that neither the City nor the Friends can prevent substandard work, both can be far more proactive in helping the public – which has little or no experience in monument repair and conservation – make sound decisions. In addition, the City needs to refrain from making inappropriate repairs and set the bar for others.

We have identified three problem areas and each of these will be briefly addressed below:

- Repointing or reworking of historic brickwork
- Repair of marble,
- Resetting of stones, and
- Cleaning of monuments.

Repointing

We provide several illustrations of typical repointing and masonry repairs from Memory Hill. Three primary issues are clearly visible. First, the mortar used for these jobs (seen in several figures as the light gray material) is a hard Portland cement mortar – far harder than the surrounding brick. In addition, no effort has been made to match the color of the original mortar. Second, the mortar has been "buttered" over the joints, greatly increasing the normal joint width and dramatically changing the appearance of the walls. In other cases the mortar has actually been smeared over the

Figure 39. Examples of inappropriate masonry repairs. The upper left photograph shows hard Portland cement smeared on the outside of a plot wall, thickened joints, and mismatched replacement bricks. The upper right photograph illustrates excessive use of hard Portland cement mortar, no effort to align bricks, and no effort to finish the joints. The left middle photograph illustrates inappropriate use (and failure) of a hard Portland cement stucco and damage that has been done to the soft bricks. The right middle photograph shows a poor box tomb repair, again using hard Portland cement mortar, no joint finish, and no effort to clean up the brick afterwards. The bottom two photographs show a box tomb where the ledger has been "leveled" by simply building up an excessive amount of Portland cement. Instead, the tomb should have been jacked level and the foundation problem corrected.

masonry, as if to hold everything together like glue – a function that mortar does not perform. And third, the joints have not been finished in any fashion. Overall, we see multiple examples of entirely unacceptable jobs that are both aesthetically disturbing and inherently damaging to the soft, low fired bricks.

All repointing should minimally meet or exceed the specifications established by *Preservation Briefs 2: Repointing Mortar Joints in Historic Masonry Buildings*.

New mortar must conform to the following criteria: (1) it must match the historic mortar in color, texture, and tooling, (2) it must have greater vapor permeability and be softer than the masonry units, and (3) it must be as vapor permeable and as soft as the original mortar.

To achieve these criteria it may be necessary to have a conservator conduct a mortar analysis. It is also inappropriate to specify a single mortar that is appropriate for all preservation work, especially at a cemetery such as Memory Hill where a variety of time periods and original mortars are present. However, in general, the mortar should be high in lime and low in compressive strength. A natural hydraulic line (NHL) or air lime would generally be specified for such work. For example, an air lime or NHL 2 might be mixed at the ratio of 0:1:3 for much repointing work at a cemetery such as Memory Hill. The sand selection would be especially critical since that additive would primarily determine the final color (and texture) of the mortar.

Existing joints would need to be raked out to a depth 2.5 times their width. Thus, a 3/8-inch joint would need to be raked out to a minimum depth of 15/16-inch (typically expressed as 1-inch). The repointing mortar, generally mixed somewhat dry to minimize shrinkage and reduce cleaning efforts, would be firmly packed in the thoroughly cleaned and moistened joint using lifts no deeper than 1¼-inches.

The specifications are more detailed than this brief overview, but this should serve to indicate the care required – and demonstrate how the workmanship seen in these examples is unacceptable for a cemetery having the historical significance of Memory Hill.

Repair of Marble

We observed several marble repairs in the Cemetery most exhibiting a variety of significant flaws. In several an epoxy has been used, which is not necessarily inappropriate. The workmanship, however, is substandard. The individual doing the work apparently did not understand the difference between gel and knife grades – using an epoxy that was viscous, resulting in the runs that have darkened over time. No effort was made to clean up the runs, probably because they were clear and the applicator did not realize that as the epoxy cured and was exposed to ultraviolet radiation it would yellow and darken.

In many cases the epoxy repairs were "simple" – meaning that epoxy was applied to the broken edges and the stone butted together. Unfortunately, this repair technique rarely survives for any length of time and when it fails there may be additional damage to the stone. In several cases we observed repairs using pins, a more sophisticated repair technique that is often superior to simply epoxy repairs. Unfortunately, in every observed case ferrous pins had been used. Over time these pins corrode. Since iron corrosion products take up more space than the iron, the pins expand, putting pressure on the stone that causes spalling and breakage.

In another case we observed that a wood or construction adhesive (such as Liquid Nails™) had been used. This is entirely inappropriate for stone repairs. It will quickly fail, often with catastrophic results, and what

Figure 40. Poor repairs. The upper left photograph shows poor workmanship using epoxy. The upper right photograph shows the use of an inappropriate adhesive, probably Liquid Nails™. The middle left photograph shows poor use of a white Portland cement that has defaced a monument. The middle right photograph shows an inappropriate fill material, possibly a window putty. The lower left photograph illustrates a failed repair that used ferrous pins. In addition, the top portion of the stone has been cemented to the ledger, making a future repair almost impossible. The lower right photograph shows a badly damaged granite maker being held together with poly-coated wire.

remains attached to the stone is often difficult to remove.

In several other cases we observed stones where repairs had been attempted using a white Portland cement. Unfortunately this material is entirely too hard for marble. In addition, the repair material has been applied so thickly and poorly that it has defaced the marker, making future repair far more difficult and costly.

In some cases broken stones have been laid flat on ledgers and attached using a Portland cement. This is a very poor technique. Not only does the flat stone suffer greater acid rain damage, but the use of Portland cement makes it very difficult to reverse the process and provide a more appropriate conservation treatment.

There is no single specification for the repair of marble or sandstone, but in general we can caution the City and the Friends that modern monument dealers (and the general public) are unfamiliar with historic stone and have little or no appropriate experience in its care and repair. When repairs of old stones are needed, only a stone conservator who subscribes to the Standards of Practice and Code of Ethics of the American Institute for Conservation of Historic and Artistic Works (AIC) should be retained.

Table 5.
Comparison of Different Cleaning Techniques

Cleaning Technique	Potential Harm to Stone	Health/Safety Issues
Sand Blasting	Erodes stone; highly abrasive; will destroy detail and lettering over time	Exposure to marble dust is a source of the fatal lung disease silicosis
Pressure Washers	High pressure abrades stone. This can be exacerbated by inexperienced users.Pressures should not exceed 90 psi.	None, unless chemicals are added or high temperature water is used.
Acid Cleaning	Creates an unnatural surface on the stone; deposits iron compounds that will stain the stone; deposits soluble salts that damage the stone	Acids are highly corrosive, requiring personal protective equipment under mandatory OSHA laws; may kill grass and surrounding vegetation
Sodium Hypochlorite & Calcium Hypochlorite (household and swimming pool bleach)	Will form soluble salts, which will reappear as whitish efflorescence; can cause yellowing; some salts are acidic	Respiratory irritant; can cause eye injury; strong oxidizer; can decompose to hazardous gasses
Hydrogen Peroxide	Often causes distinctive reddish discolorations; will etch polished marble and limestone	Severe skin and eye irritant
Ammonium Hydroxide	Repeated use may lead to discoloration through precipitation of hydroxides	Respiratory, skin, and eye irritant
D/2 Architectural Antimicrobial	No known adverse effects, has been in use for nearly 10 years	No special precautions required for use, handling, or storage

Cleaning of Monuments

We observed a significant amount of damage resulting from inappropriate cleaning techniques. The most common cleaning technique is the use of a bleach product. It may be that this work is being performed by a local company, or it may be performed by individual families. In either case it is unacceptable for historic monuments.

Table 5 discusses problems with a variety of "common" stone cleaning processes used by commercial firms. Providing this sort of information to families who have loved ones buried at Memory Hill may help deter abusive

Figure 41. Inappropriate cleaning at Memory Hill. The yellow staining and erosion (seen clearly in the upper right photograph) are all the result of bleach applications.

cleaning. We also illustrate several examples of the staining that results from cleaning using bleach (either household bleach or swimming pool bleach).

Cleaning is largely an aesthetic issue at Memory Hill – we saw few examples where soil or biologicals were actually causing damage to the monuments. Consequently, the City and Friends should embark on an educational program to discourage inappropriate cleaning – explaining not only the dangers of bleach and other commercial methods, but also pointing out that such activities diminish the historical value and ambience of the cemetery. These cleaning methods remove not only soil, but also the patina of age – leaving monuments that no longer appear historic.

This educational program should point out that cleaning – even when done correctly – will gradually erode monuments, making them susceptible to more soiling and damage. Consequently, cleaning should be conducted no more frequently than perhaps once every 5 years.

The safest product for cleaning is simply low pressure (less than 90 psi) water and a soft bristle brush. When some other assistance is needed a product that has been found safe for most stones is D/2 Architectural Antimicrobial distributed by Cathedral Stone.

Recommendations

There is much plot coping in the Cemetery that has been broken, dislodged, or displaced. Its current condition detracts from the historic landscape and much of it poses a liability to the City. We recommend that steps be taken to repair or replace the coping as needed.

There are displaced stones or stone fragments throughout the cemetery. As identified these should either be re-associated with the rest of the monument or should be collected, labeled, and securely stored by the City to prevent damage or theft.

Artificial flowers detract from the historic landscape and dignity of the Cemetery. The City currently has a regulation requiring that these flowers be removed in a timely fashion. This regulation should be enforced and the City should establish a procedure to periodically remove grave decorations that are wilted or unsightly.

There is only minimal signage at Memory Hill Cemetery. We recommend appropriate regulatory signage with perhaps some additional brochures.

A variety of inappropriate and damaging monument repairs and maintenance activities are documented at Memory Hill Cemetery. Some of these activities, such as the use of bleach for cleaning, pose a liability to the City. Virtually all detract from the beauty and integrity of the Cemetery. The City and the Friends should embark on an educational program, acquainting the public with appropriate and inappropriate techniques. The greatest impact could be achieved by focusing on the issues of masonry repair (repointing) and the cleaning of monuments.

CONSERVATION TREATMENT OF MONUMENTS

General Types of Stone Damage

Although a stone-by-stone assessment was not included in this assessment, it is possible to provide some general observations concerning the types of problems faced by the Memory Hill stones.

There are many examples (ca. 40) of broken stones. Many of these stones should receive a high priority for conservation treatments since the stones are either a hazard to the public (endangering visitors) or a hazard to themselves (if they fall there will be additional, significant damage that will dramatically increase the cost of repair). The City and Friends should consider having these stones identified and obtaining funds for repairs. We recommend this work be conducted over the next 2 to 3 years.

There are also a number of loose stones (we estimate ca. 80) and these, too, may pose a significant risk to the public, depending on the size and degree of instability of each stone. Some stones will require equipment to allow disassembly and correct repair. Others are smaller and the treatment may involve drilling for the installation of stainless steel pins to help hold the stone in place. A few of the problems may be resolved using commercial setting compound.

A few of the stones were noted with ferrous pins (ca. 10). These should be given a high treatment priority since, left untreated, the corrosion will cause significant spalling, cracking, and breakage of the stones. In these cases it will be necessary to use diamond core drills to remove the ferrous pins. They will then need to be replaced with stainless steel pins.

Although sandstone monuments are relatively uncommon, several of those present exhibit spalling (ca. 5). This results from the stone absorbing salts in solution. As the liquid evaporates the salts crystallize and cause spalling or delamination. Treatment for this problem is complex – and costly. However, left untreated the stone will continue to deteriorate and be lost.

There are a number of failing box tombs (ca. 10). Some are of brick construction and the mortar joints are failing. Others are of granite construction and the blocks are settling. In either case, as the support for the ledger is undermined, there is a significant potential that the ledger will be damaged – and this dramatically increases the cost of repair. Consequently, these ledgers should receive a relatively high priority for repair.

We also observed a small number of stones, ledgers, and even box tombs that had been placed with inadequate foundations (ca. 10). As the grave subsided the monument began sinking into the grave. Repair involves jacking the monument to a level position and infilling to create a solid foundation.

We have previously discussed the level of assessment needed for the brick family vault on the cemetery, as well as treatments needed for the brick walls and coping.

As this suggests, there are a number of critical stone-related problems at Memory Hill. The cemetery is very old and regrettably has seen much improper maintenance or deferred maintenance. Thus the condition of the stones today is the result of 100 or more years. While repairs cannot be conducted over night, the City

Figure 42. Typical monument damage. The top row illustrates a variety of broken markers. The cross, in particular, poses a significant hazard to the public. The lower row illustrates loose markers. These, too, may pose a serious threat to visitors.

Figure 43. Typical monument damage. The upper left stone shows a corroded ferrous pin. This pin will need to be core drilled out and replaced with a stainless steel pin. The upper right photograph illustrates a spalling concrete ledger. Loss of this fabric will make the stone unreadable. The middle left photograph shows a badly spalling sandstone box tomb. The middle right photograph shows a failing brick box tomb and partially displaced marble ledger. The lower left photograph illustrates a failing granite box tomb. The lower right photograph illustrates a sinking concrete ledger. Like the previous example of a sinking box tomb, this ledger will need to be jacked up and stabilized with a new foundation.

and Friends must take steps to begin addressing the most critical issues in a timely fashion. Failure to do so will result in additional damage and escalating costs.

Acceptable Conservation/Preservation Procedures

We will briefly outline a few critical issues for different conservation or preservation approaches at Memory Hill. In some cases volunteers may be able, with training, to carry out simple activities. In many cases, most particularly conservation of stone, volunteers are strongly advised not to undertake the work. In fact, even professionals in related fields may be inappropriate. Just as one would not ask a house painter to repair an oil painting, it is important that handymen or stone/brick masons familiar primarily with modern materials and techniques not undertake the conservation treatments outlined in this assessment.

The work should be completed by conservators thoroughly familiar with the exacting requirements of the treatment involved. Given the importance of the Memory Hill monuments, we recommend that only stone conservators who are members of the American Institute for Conservation of Historic and Artistic Works (AIC) be retained to conduct any treatments in the Cemetery.

Stone Conservation

Fragment storage protects fallen or broken stones from loss and damage. At present there appears to be no procedure to ensure that damaged stones are identified and cared for. We found bits and pieces of stones in several locations in the cemetery (in and under the sexton's shed). In many cases broken stones have been left lying where they fell — this is irresponsible management that endangers the stone and shows disrespect for both the monument and the individual buried in the cemetery.

Repairing damaged stones is the surest way to protect them, but in many cases fragments can be provided temporary storage until funding is available for repair. Temporary storage should be in a dry, secured facility. Individual items must be marked with information concerning where they were found. One solution would be to mark the location on a map and include that map with the stored stones. Another approach is to use aluminum tags secured to the stone fragments using nylon string.

Resetting is a common need at many old cemeteries. The simplest resetting involves stones which are tilted or which have come out of the ground. These should never be reset using concrete, but rather should be set in pea gravel. This approach allows the stone some movement should it be accidentally impacted by lawn maintenance activities. The pea gravel will also promote drainage away from the stone, helping the stone resist the uptake of soluble salts.

In cases where stones are loose in a supporting base, resetting involves the use of a wet, high lime mortar mix. In this and all other areas of treatment, the Cemetery should avoid the use of Portland cement. It is entirely too hard for the stones and may contain impurities that will damage the stone through long-term exposure. More appropriate is a 1:3 mix of air lime (such as lime putty) or NHL 2 and sand. Epoxy and other adhesives should never be used since once set it is virtually impossible to remove the material. Even the use of commercial setting compounds used by the monument industry should be limited to use on granite markers produced within the last 50 years.

At times resetting may be made more complex by the presence of corroded iron dowels. Where present these must be removed before the stones can be reset. Such a repair requires that the old pins be drilled out using a core drill, new pins of stainless steel be inserted using an appropriate epoxy, and mortar then used to set the monument. This is a treatment

which should be performed only by a trained conservator.

Cleaning stones simply *for the sake of appearances is usually ill-advised.* Such efforts endanger the stone and often promote even quicker soiling afterwards. Where cleaning is critical, it should be limited to the use of low pressure (i.e., less than 90 psi) water and soft bristle brushes or, where necessary, the use of D/2 Architectural Antimicrobial.

We have previously discussed commercial stone cleaning methods, indicating that they are inappropriate for use in historic burial grounds such as Memory Hill. *In absolutely no case should sandblasting, stone refinishing or polishing, or high pressure chemical or water washing, or acid cleaning be used at Memory Hill Cemetery. Commercial cleaning agents should only be used under the direction of a stone conservator.*

Coatings are not recommended for any stone material at Memory Hill. Many coatings are actually detrimental to the stone, causing staining, efflorescence or scaling. Moreover, coatings are not reversible, so once applied they are impossible to remove should detrimental effects be noted. There are a very few that appear to be vapor permeable and are being tested for possible use on stone. Even these, however, should be used only under the direction of a stone conservator and sparingly.

Mechanical repair most often means the rejoining of fragmented stones. *Such work should be undertaken only by stone conservators trained in this area.*

In most cases gravestones are fragile and their repair is delicate work. There are many commercial products on the market, used by many commercial stone companies, which are totally inappropriate for historic stone.

Appropriate conservation treatment will usually involve drilling and pinning, carefully aligning the two fragments. Threaded 316 stainless steel rod (or occasionally nylon) and epoxy adhesives formulated for the specific stone are used in this type of repair. Diameters and lengths of pins vary with the individual application, depending on the nature of the break, the thickness of the stone, its condition, and its expected post-repair treatment.

Sometimes pins are not used to save time and money. Instead the pieces are simply joined using a continuous bead of epoxy or some other adhesive. Experience indicates that for a long-lasting repair, particularly in non-structural applications, use of pins is usually necessary. Moreover, most adhesives are far stronger than the stone itself, meaning that failure of the repair is likely to cause additional damage to the stone.

At times mechanical repairs also involve dismantling intact elements and ensuring that a sound foundation is present. Foundation work may involve filling in depressions, establishing a concrete footing, or taking other measures to ensure that subsidence is minimized. Then the entire structure is repaired as it is reassembled.

In some cases concrete has been used to repair broken stones. This is inappropriate. Not only is the result aesthetically unappealing, but the concrete is far harder than the stone and can cause long-term deterioration. Because the concrete is very difficult to remove, we generally recommend that stones repaired with concrete be left as they are, as long as the old repair is stable and causing no immediate damage or problems. Such repairs, however, should be carefully monitored. It is likely that the time will come when these old repairs will fail and a more appropriate repair will become possible.

Composite stone repair consists of filling voids with a natural cementitious composite stone material resembling the original as closely as possible in texture, color, porosity, and strength. This type of repair may be used to fill gaps or losses in marble and is often used to

help slow scaling of bedded sandstone exposed to the elements.

Under no circumstances should latex or acrylic modified materials be used in composite stone repair. These additives may help the workability of the product, but they have the potential to cause long-term problems. Such products are not appropriately matched in terms of strength or vapor permeability.

More suitable materials are materials such as Jahn (distributed by Cathedral Stone) or the lime-based mortars of U.S. Heritage. These closely resemble the natural strength of the original stone, contain no synthetic polymers, exhibit good adhesion, and can be color matched if necessary.

All infill work should be conducted by a trained conservator. The Jahn products, in fact, require certification in their use through Cathedral Stone.

Brick Conservation

The primary use of brick at Memory Hill is in the construction of box tombs or plot walls. There are, in addition, some ledgers of brick with a Portland cement capping (which is often failing).

We also noted that often repairs exhibited poor workmanship, detracting from the historic character of the cemetery and failing to respect the original materials.

Repairs should always begin with photographing the structure as it exists in order to completely document the original fabric and construction details. Only the unsound brickwork should be removed, stopping as soon as sound material is encountered. Repair should, as far as possible, use similar brick, mortar, joints, and tooling. Brick should match in size, hardness, texture, and color. Mortar should match the original in color, texture, and most importantly, strength.[1] Historic bricks are often far softer than modern examples. The use of a modern hard cement mortar will cause extensive damage to this soft brick as one expands more rapidly than the other. Mortar should always be designed to deteriorate more quickly (meaning the use of high lime mortars) than the brick since it can be readily replaced through pointing.

We have previously discussed repointing issues and the single best guide (short of specifications developed by a conservator for a specific job) is *Preservation Briefs 2: Repointing Mortar Joints in Historic Masonry Buildings*.

Concrete Repair

Concrete has been extensively used in the twentieth century Memory Hill plots, both as ledgers covering the burial, and also as coping. Much of this concrete is in failure, or has already failed.

One of the most common — and clearly obvious — problems is spalling, crumbling, and complete failure. Careful examination reveals that the concrete exhibits no structural strength and crumbles. The mix also exhibits the use of very large quantities of substandard aggregate. The deterioration may be related to the sulfates present in the mix. These sulfates react with the concrete to form gypsum which expands in the concrete and causes bowing, buckling, crumbling, or scaling of the concrete surface. Alternatively, the aggregate may have been

[1] While historically appropriate mortars can be mixed, typically as a 1:3 ratio of either lime putty or NHL 2 or 3.5 with sand, recently prepackaged mixes have been marketed. These products are superior when only large jobs are undertaken, since they assure that the materials and mix are consistent. They are available from Virginia Lime Works (Mix-n-Go) and Cathedral Stone (Restomix).

sufficiently porous to encourage frost spalling. Other concrete exhibits spalling that is probably related to its absorption of moisture and freeze-thaw action. Some damage may also relate to the failure to adequately compact the concrete and eliminate entrapped air (each 1% of entrapped air can reduce the strength of the concrete by 6%). This concrete is even more susceptible to frost action.

In such cases the only remedy is to remove the concrete and replace it with an appropriate mixture.

There are basic procedures to be followed in concrete use, yet shortcuts are often taken that ultimately result in significantly compromised concrete. The durability of any concrete depends on the quality of the mix and workmanship involved in mixing, placing, compacting, and curing. For example, low permeability of finished concrete depends on the hydration of the cement to fill interstice voids that are initially filled with water. Keeping the newly cast concrete moist prevents the fresh concrete from drying too quickly and allows hydration to continue; this, in turn, promotes greater durability.

Ironwork Conservation

Every effort should be made to retain all existing ironwork, regardless of condition. Replacement with new materials is not only aesthetically inappropriate, but often causes galvanic reactions between dissimilar metals. When some of the existing ironwork is incomplete, a reasonable preservation solution is to repair and maintain the remaining work rather than add historically inappropriate and incorrect substitutes. If replacement is desired, salvage of matching elements is preferred over recasting. Replication is typically not an appropriate choice since it is by far the most expensive course of action, and is often done so poorly.

The single best protection of ironwork is maintenance — and this revolves around painting. We have previously outlined specific steps and materials to use, focusing on minimal cleaning, followed by two coats of a rust converter and a final top coat of a flat or semi-gloss alkyd paint.

Repair may include reattachment of elements. Ideally repairs should be made in a manner consistent with original construction. For example, most newel posts were originally attached to a stone or masonry base using a threaded rod packed in lead. When this assembly is loose, the ideal approach is to replace the threaded rod, repacking it using an epoxy filler (lead is rarely recommended both because of its health consequences and also because lead-iron contact promotes corrosion).

It may also be appropriate to use small stainless steel braces with stainless steel nuts and bolts to re-attach coping rails to posts. While welding is often expedient, this approach causes a radical change to the fence. Once welded, pieces are no longer able to move with expansion/contraction cycles, and this causes internal stresses that may lead to yet additional structural problems. Careful inspection of fences in good condition reveals that virtually all connections were “slip joints” – allowing the parts to expand and contract.

In addition, while wrought iron is easy to weld because of its low carbon content, cast iron contains up to 4% carbon and is difficult to weld. Welding on cast iron should be done only by firms specializing in this work and capable of preheating the elements. An alternative is to braze cast iron since this approach requires much less heat.

When used, welds should be continuous and ground smooth, in order to eliminate any gaps or crevices. When finished, it should be difficult to distinguish the weld — the original metal should blend or flow directly into the reattached part.

Another problem observed at Memory Hill is the burial of the bottom fence rail in soil. In such cases moisture is held against the ironwork, promoting extensive corrosion.

When the fence is buried in the soil all that need be done is to resculpt the ground, lowering it below the bottom rail. This will not only resolve the corrosion problem, but can also promote better drainage away from the ironwork.

Much of the ironwork would also benefit from careful caulking of joints to prevent capillary uptake of moisture – which promotes corrosion in joints and other small crevices. An appropriate caulk is a premium-grade, high-performance, moisture-cured, single-component, polyurethane-based, non-sag elastomeric sealant.

Perhaps the most significant threat to the ironwork, however, is theft. Memory Hill is exceedingly fortunate to have a large and diverse collection of ironwork — and a number of the fences have original gates. All are attractive to thieves and the City or Friends should take immediate action to harden these targets and discourage their theft.

Understanding Priorities

With limited funds it is often critical that organizations establish priorities for cemetery conservation/preservation projects, ensuring that the most critical issues are dealt with first. Sound priorities will be based on two factors:

> First, is the object a threat to people? Examples of this include loose monuments which might topple, diseased trees which might shed limbs unexpectedly, and brick walkways which are tripping hazards.
>
> Second, is the object a threat to itself? In other words, if left unattended, will the condition deteriorate and cause additional damage, and expense to repair? Examples of this include corroding ironwork, monuments which might topple and break, and trees growing against other cemetery features.

It should be abundantly clear that first priority items require immediate — even emergency — treatment in order to ensure the safety of visitors and avoid claims of liability against the City of Milledgeville.

Second priority items are nearly as important since failure to deal with these items will result in repairs costing far more as the condition deteriorates. *Deferred maintenance is not only poor stewardship, but it is fiscally irresponsible. Simple repairs, delayed, turn into very expensive treatments.*

Beyond these two priorities, all other issues in the cemetery fall into a third category. Examples might include infill, replacing missing features or elements, repairing most coping, and cleaning of stones. It is far more critical that the caregivers establish, as their third priority, a preventative maintenance program that will help to ensure that appropriate maintenance is carried out on an on-going basis, limiting the need for future emergency treatments. Only once all priority one (threatening to human life) and priority two (threatening to the safety of the monument or other features) and a preventative maintenance program is established, should the caregivers of Memory Hill turn their attention to more cosmetic repair issues.

PRIORITIES AND FUNDING

Funding

Funding sources for cemetery work are limited and there are no secret sources. In particular, federal budgets for cultural resources – such as historic cemeteries – have been dramatically reduced as a result of efforts to reduce taxes and sustain a very expensive war effort. This means that funding must largely come from local government and those using Memory Hill. We will briefly outline a few of the sources that the City and Friends may wish to explore.

Federal Funds – Survey and Planning Grants

Certified Local Governments in Georgia are eligible for National Park Service funds administered by the Georgia Department of Natural Resources, Historic Preservation Division. These funds are available first, for county-wide surveys and second, for more detailed preservation planning activities. These are 60-40 (federal-local) matching grants.

The individual responsible for these programs at the Historic Preservation Division is the Grants Coordinator, currently Ms. Carole Moore. Additional information is available at http://www.gashpo.org/content/displaycontent.asp?txtDocument=40.

Federal Funds – National Trust for Historic Preservation Grants

The National Trust offers small (typically less than $5,000) seed or starter grants to non-profits for planning and education projects. Also available is the Johanna Favrot Fund for Historic Preservation, although this will not fund repair and rehabilitation work (although grant amounts are up to $10,000).

For more information, contact the Southern Office of the National Trust for Historic Preservation at 843-722-8552 or soro@nthp.org and the National Trust website at http://www.nationaltrust.org/help/grants.html.

Federal Grants – National Endowment for the Humanities Challenge Grants

These grants are intended to subsidize or create endowments to support such projects as the maintenance of facilities and conservation. Memory Hill would certainly fall into this category and the grant funds projects from $20,000 up to $1,000,000. Competition, however, is very strong.

For additional information go to www.neh.fed.us/grants/guidelines/challenge.html.

State Funds – Heritage Grant Program

These are State funds that are administered by the Georgia Department of Natural Resources, Historic Preservation Division. They are available for use by government agencies and non-profits on a 60-40 state-local match basis and a separate fund is available for Certified Local Governments. Eligible projects for the 2007 fiscal year include what are termed "development" activities such as stabilization, preservation, rehabilitation, and restoration – an ideal match for Memory Hill – and "predevelopment" projects such as the preparation of plans and specifications, feasibility studies, historic structure reports, and other building-specific or site-specific preservation plans.

The individual responsible for these programs at the Historic Preservation Division is the Grants Coordinator, currently Ms. Carole Moore. Additional information is available at http://www.gashpo.org/content/displaycontent.asp?txtDocument=38.

Private and Foundation Grants

In this category are grants offered by such organizations as:

- American Express Foundation – Cultural Heritage Program – http://home3.americanexpress.com/corp/giving_back.asp
- Bank of America Foundation – www.bankofamerica.com/foundation
- Hampton Hotel's Save-A Landmark Program – www.hamptonlandmarks.com

There are possibly other Georgia private foundations whose stated interests might include cemeteries, historic preservation, or conservation.

Non-Grant Funding

Ultimately it will be necessary for much of the work necessary at Memory Hill to be funded by the City of Milledgeville. *Memory Hill is, after all, a City cemetery and the City ultimately has responsibility for its care and maintenance.* It is clear that the City has focused on deferred maintenance for a number of years and it is now time to recognize the value – and needs – of this resource. Appropriations are required to undertake the level of care that the cemetery, by virtue of its age and significance, deserves.

Many cemeteries use the fear of allocating public monies to the upkeep of private property to prevent them from adequately maintaining their cemeteries. There are two fallacies in this position.

The first is that many of the recommended activities have nothing to do with individual lots, but are actually issues throughout the cemetery, focusing on common areas. Issues such as appropriate tree care, appropriate street maintenance, appropriate shrubbery care, security, and signage are issues that should be considered routine maintenance of the cemetery property.

The second is that many of the lots, especially in the older sections – where the vast majority of the problems are documented – may no longer have any known family members available to provide care.

With no family to even request that monuments receive needed care, deterioration continues – either to the point that a monument is a danger to the public and a liability to the City or until its deterioration devalues the lots of others in the cemetery. Either way, for those lots with no known caregivers, the responsibility falls on the shoulders of the City to provide appropriate care.

Appropriate care is that which is necessary to both retain the value of nearby plots and the historic significance of the cemetery as a whole.

To facilitate this effort the Friends may wish to begin the process of attempting to track down relatives using various on-line genealogical tools. This will be a laborious process, but conducting a study that involves a sample of 100 individuals may serve to demonstrate to the City that the effort is so difficult that it is better to care for these monuments than attempt to identify next of kin generations removed and hundreds or thousands of miles away.

Recommended Priorities

Table 6 lists the recommendations offered throughout this assessment, classifying

Table 6.
Prioritization of Recommendations

Priority	Recommendation	Responsibility	Budget
First – this fiscal or calendar year	Formalize policy that all decisions at Memory Hill will be made in the context of the Secretary of the Interior's Standards for Preservation	City	n/c
	Formally recognize the sexton's shed, bathroom, and gazebo at Memory Hill as contributing elements of the National Register listing and ensure that they receive the same level of care and consideration as other cemetery elements	City	n/c
	Formally recognize that Memory Hill includes elements of several cemetery design movements and ensure that these different contexts will be protected	City	n/c
	Maintain routine police patrols through the cemetery	City & Friends	n/c
	Conduct conservation treatments of priority fences	City & Friends	$62,000
	Establish policy and procedures to identify, report, and respond to damage, vandalism, and theft within the cemetery	City & Friends	n/c
	Secure all plot gates in the cemetery	Friends	$500
	Have trees inspected by a certified arborist and treated as necessary (it may be possible for the City staff to assume this responsibility once the cemetery is appropriately staffed)	City	$25,000
	Change all trimmer line used in the cemetery to a thickness of no greater than .065-inch	City	n/c
	Retain a firm to rehabilitate the shrubbery in the cemetery (this responsibility can be assumed by the City staff once the cemetery is appropriately staffed)	City	$15,000
	Install appropriate signage, including regulatory signage	City & Friends	$3,000
	Immediate conservation issues – representing safety issues for the public	City & Friends	$30,000

Table 6, cont.
Prioritization of Recommendations

Priority	Recommendation	Responsibility	Budget
First – this fiscal or calendar year, cont.	Implement a fire ant control program consisting of baiting and individual mound treatments	City	$3,000
	Conduct a detailed assessment and develop specifications for repair of the brick family tomb	City	$6,000
	Develop a landscape plan for the cemetery to provide specific recommendations regarding removal, pruning, rehabilitation, and replacements	City & Friends	$8,000 (mapping by the City)
	Repair/resurface (Type I slurry seal) the roads in the African American section	City	$52,000
	Bollards to block small arterial roads	City	$2,600
Second – over next 2 to 3 years	Conduct conservation treatments of other fences	City & Friends	$79,000
	Increase staff to 2 supervisors and 6 permanent, full-time employees responsible only for work at Memory Hill Cemetery – ensure continuity by providing appropriate pay levels	City	$350,000 yearly
	Collect displaced stones and replace where they belong or securely store	Friends	n/c
	Develop a tree plan to ensure that tree planting decisions are guided by historic appropriateness, and respect for the historic fabric of the cemetery	City & Friends	$5,000
	Clean and repair drain and catch basin	City	$1,500
	Conduct soil analyses to determine if adjustments are necessary	City	$500
	Eliminate the use of artificial flowers and/or enforce "wilted and unsightly" regulations	City	n/c
	Rehabilitate the main entrance, replace non-historic fencing	City	$25,000
	Remove light at south edge of the cemetery	Utility co.	n/c
	Increase the number of Memory Hill Cemetery brochures	Friends & Others	$10,000
	Repair or replace damaged lot coping	City	$10,000

Table 6, cont.
Prioritization of Recommendations

Priority	Recommendation	Responsibility	Budget
Second – over next 2 to 3 years, cont.	Educate owners on appropriate maintenance activities, such as cleaning and repair of monuments – help owners select appropriate conservators	City & Friends	n/c
	Second priority conservation treatments reflecting on-going deterioration	City & Friends	$55,000
Third – over next 3 to 5 years	Have trees inspected by a certified arborist and treated as necessary (this responsibility can be assumed by the City staff once the cemetery is appropriately staffed)	City	$25,000
	Institute limited pre- and post-emergence weed control in a manner that will not harm the stones. Focus on areas with heavy weed densities	City	$10,000
	Cap and eliminate excess, damaged, or no longer functioning hose bibs in the cemetery	City	$5,000
	Discourage the use of gravel in plots	City & Friends	n/c
	Conservation, expect as on-going cost	City & Friends	$25,000
First Priority Budget			$207,100
Second Priority Budget			$536,000*
Third Priority Budget			$65,000

* This includes an estimated yearly cost of $350,000 for adequate cemetery staff and is recurring.

them not only by priority, but also by responsibility.

Priorities are identified here as First, Second, or Third:

> First priorities are those we recommend undertaking during the current fiscal or calendar year. These are largely issues that have the potential to affect the public health and safety and consequently require immediate attention.
>
> Second priorities are those which should be budgeted for over the next 2 to 3 years. They represent urgent issues that, if ignored, will result in both significant and noticeable deterioration of Memory Hill as a historic resource.
>
> Third priorities are those that may be postponed for 3 to 5 years. They are issues for which the City and Friends may seek grant or foundation funding. Or they are issues that can wait for appropriations to build up to allow action. Because they are given this lower priority, however, they should not be

dismissed as trivial or unimportant.

The proposed budget for immediate actions this fiscal or calendar year, therefore, is approximately $207,100. While a significant sum, all of the tasks are critical issues, representing safety and health issues or maintenance activities that have been so long deferred that additional postponements are imprudent (or, if deferred, the cost will continue to exponentially escalate).

The Second Priority issues are equally modest – reflecting only $186,000 (excluding staff) that can be spread over three years – reflecting a per year budget of only $62,000. Again, this represents such a modest amount given the extraordinary significance of Memory Hill Cemetery that it should raise no concerns on the part of the City Council.

The Third Priority issues represent only $65,000 – again such a small amount that it should be easily budgeted by Milledgeville, considering the importance and prestige of the cemetery.

Of course, there are on-going costs – just as there are for any resource of value to the community. Just as parks or water service or police protection have yearly costs, so too do historic resources. The problem is that the City of Milledgeville has, for years, deferred these costs, creating cumulative problems that now must be addressed or else the resource will be so degraded that its continued significance to the community will be doubtful.

APPENDIX 1. RESUME FOR MICHAEL TRINKLEY

MICHAEL TRINKLEY

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Education/Training

1974	B.A., Anthropology, University of South Carolina, Columbia
1976	M.A., Anthropology, University of North Carolina, Chapel Hill
1980	Ph.D., Anthropology, University of North Carolina, Chapel Hill
1997	Non-Destructive Investigative Techniques for Cultural Resource Management, NPS Workshop, Fort Scott National Historic Site, Fort Scott, Kansas (geophysical techniques)
1999	Jahn Installer Workshop, Cathedral Stone Products, Inc., Jessup, Maryland (3 days) (certified installer 9906811-SC)
2001	Preservation & Care of Brownstone Buildings, Technology & Conservation Conference, Boston, Massachusetts
2003	Lime Mortar Workshop, U.S. Heritage, Chicago, Illinois
2004	Preservation Masonry Workshop, School for the Building Arts, Charleston, SC (2 days)
2005	International Lime Conference, Orlando, Florida
2005	Edison Coatings Workshop, Richmond, Virginia (1 day)
2005	Historic Masonry Preservation Workshop, John Lambert, Campbell Center for Historic Preservation Studies, Mt. Carroll, Illinois (1 week)
2005	Preservation Masonry Workshop, College for the Building Arts, Charleston, SC (2 days)

2005	Masonry Analysis & Testing Workshop, Berkowitz and Jablonski, Campbell Center for Historic Preservation Studies, Mt. Carroll, Illinois (1 week)
2005	Jahn 4-Hour Workshop, Cathedral Stone Products, Columbia, SC
2006	Stone Carving and Restoration Workshop, Traditional Building Skills Institute, Snow College, Ephraim, Utah (3 days)

Memberships

American Institute for Conservation of Historic and Artistic Works
US/ICOMOS – Brick, Masonry & Ceramics Committee
Association of Preservation Technology
Preservation Trades Network
National Trust for Historic Preservation
Association of Gravestone Studies

Abstract of Cemetery Conservation/Preservation Experience (not inclusive of legal/archaeological experience):

1992	Reviewer of National Trust for Historic Preservation publication on historic cemeteries publication by Lynette Strangstad.
1998-99	Principal Investigator, Survey and Documentation of African-American cemeteries in Petersburg, Virginia. Including mapping, grave location, and development of historic context. (with Preservation Consultants, Charleston, SC).
1998-99	Conservation activities, Maple Grove Cemetery, Maple Grove United Methodist Church, Waynesville, North Carolina.
1999	Instructor, Cemetery Preservation: Making Good Choices Workshop, Virginia Association of Museums, Petersburg, Virginia.
1999	Instructor, Cemetery Preservation: Making Good Choices Workshop, Georgia Local History Conference, Augusta, Georgia.
2000	Consultation regarding maintenance and clearing of Ricefield's Woodville Cemetery, Georgetown County, South Carolina.
2000	Invited Speaker, Cemetery Conservation Techniques, Historic Cemetery Preservation Workshop, Maryland Historical Trust, Annapolis, Maryland.
2000	Preservation assessment, Summerville Cemetery, Augusta, Georgia.
2001	Assessment and preservation plan for Glenwood Cemetery, Thomaston, Georgia.
2001	Reconnaissance survey of cemeteries in Richland County, South Carolina.

2001	Preservation guidelines for St. Paul's Cemetery, Augusta, Georgia.
2001	Instructor, Cemetery Preservation: Making Good Choices Workshop, Restoration International Trade Event, New Orleans, La.
2001	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2002-2003	Conservation program, Old Waxhaws Presbyterian Cemetery, Lancaster County, South Carolina.
2003	Treatment of markers at the Vardeman Cemetery, Lincoln County, Kentucky.
2003	Consultation concerning cemetery walls and pathways, Maple Grove Cemetery, Waynesville, North Carolina.
2003	Invited Speaker, Preservation of African American Cemeteries Conference, 2003, Helena, Arkansas.
2003	Instructor, Cemetery Preservation: Making Good Choices Workshop, Washington County, Georgia Historical Society, Sandersville, Georgia.
2003	Preservation assessment, Old City Cemetery, Sandersville, Georgia
2003	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2003	Treatment of markers at Oakview and Riverside cemeteries; examination of burial vaults in white and African American sections, City of Albany, Georgia (FEMA funded).
2003	Preservation assessment, Historic Cemeteries at Five Cemeteries, Bannack State Park, Bannack, Montana
2003	Consultation concerning cemetery brick wall, Midway Church, Midway, Georgia.
2004	Treatment of markers at Richardson Cemetery, Clarendon County, South Carolina.
2004	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2004	Treatment of markers at Maple Grove Cemetery, Waynesville, North Carolina.
2004	Consultation regarding State Historical Marker, Roseville Cemetery, Florence County, South Carolina.
2004	Consultation regarding the Mary Musgrove Monument, Musgrove Mill State Park, Laurens County, South Carolina.

2004	Invited Speaker, Cemetery Preservation Workshop, SC Genealogical Society Annual Meeting, Walterboro, South Carolina.
2004	Treatment of markers at Wrightsboro Cemetery, Thomson, Georgia.
2005	Treatment of markers at Pon Pon Cemetery, Colleton County, South Carolina.
2005	Treatment of markers at Walnut Grove Plantation, Spartanburg County, South Carolina.
2005	Consultant on cemetery fence theft, Save Austin's Cemeteries, Austin, Texas.
2005	Treatment of markers at Richardson Cemetery (Second Phase), Clarendon County, South Carolina.
2005	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Washington, D.C.
2005	Treatment of marker in Oakview Cemetery, Albany, Georgia.
2005	Instructor, Cemetery Preservation: Making Good Choices Workshop, National Preservation Institute, Las Vegas, New Mexico.
2005	Treatment of markers at Trinity Cathedral, Columbia, SC.
2005	Preliminary preservation recommendations, Randolph Cemetery, Columbia, SC.
2005	Treatment of markers in Presbyterian Cemetery, Union, SC.
2005	Instructor, Cemetery Preservation: Making Good Choices Workshop, Save Oklahoma's Cemeteries, Muskogee, Oklahoma.
2005	Treatment of marker, Reynolds Homestead, Critz, Virginia.
2005	Assessment and preservation plan for Lewis Cemetery, King and Queen County, Virginia. King and Queen County Historical Society.
2006	Treatment of markers in Presbyterian Cemetery, Union, SC (second phase).
2006	Assessment and preservation plan for Pine Lawn Memorial Gardens, Aiken, South Carolina. SC Department of Archives and History, Columbia.
2006	Assessment of Clark-Brown Cemetery, Unadilla, Georgia.
2006	Invited Speaker, Planning a Cemetery Preservation Project, People and Places: South Carolina's Seventh Annual Statewide Historic Preservation Conference, SC Department of Archives and History, Columbia, South Carolina.
2006	Assessment and Preservation Plan, Memory Hill Cemetery, Milledgeville, Georgia.

2006 Invited Speaker, Cemetery Rehab, South Carolina Landmark Conference, SC Department of Archives and History, Aiken, South Carolina.

2006 Assessment, Town of Dedham, MA cemetery, Vollmer Associates, Boston.

2006 Assessment and Preservation Plan, Springwood Cemetery, City of Greenville & Friends of Springwood Cemetery, Greenville, South Carolina.

2006 Preparation of landscape plan, Randolph Cemetery, Columbia, South Carolina.

National Register Nominations of Cemeteries

1999 Preliminary Multi-Property Nomination, African American Cemeteries of Petersburg, Virginia. Submitted to Virginia Department of Historic Resources, Richmond, Virginia (with Sarah Fick, Preservation Consultants).

2000 National Register Nomination, King Cemetery, Charleston County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Department of Archives and History, Columbia.

2002 National Register Nomination, Scanlonville or Remley Point Cemetery, Charleston County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Department of Archives and History, Columbia.

2005 Preliminary Information Form – Hopkins Family Cemetery, Richland County, South Carolina. Submitted to South Carolina State Historic Preservation Office, SC Department of Archives and History, Columbia.

Cemetery Preservation Plans

Historical Research

Identification of Grave Locations and Mapping

Condition Assessments

Treatment of Stone and Ironwork

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